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MINUTES FROM 17 MARCH 1999 RESTORATION ADVISORY BOARD MEETING NTC
ORLANDO FL
3/17/1999
NAVFAC SOUTHERN

Meeting Summary
Restoration Advisory Board
Naval Training Center (NTC), Orlando
March 17, 1999

A meeting of the NTC, Orlando Restoration Advisory Board (RAB) was held on March 17, 1999, in the City Commission Chambers, Winter Park City Hall. Attached to this meeting summary are:

- Attachment A: Meeting Agenda
- Attachment B: RAB Member Sign-in Sheet
- Attachment C: 1998 RAB Attendance Record
- Attachment D: Base Realignment and Closure (BRAC) Update
- Attachment E: Base Realignment and Closure Business Plan And
NTC & McCoy Annex Hauling Presentation Handout
(Information Repository copy only)
- Attachment F: Community Mailing List Notice
- Attachment G: Community Sign-In Sheet

RAB members present at the meeting were:

Hank Beers	Nancy Maloney
D. Fuller	Blanche Olson
Edwin Granberry	Nancy Rodriguez
David Grabka	Ann Williams
Wayne Hansel	Geraldine Wojeck
Phillip Jaffe	Kay Yeuell

Other Navy and support personnel present at the meeting included:

Rick Allen, Harding Lawson Associates
Susan Carroll, Tetra Tech NUS
Steve McCoy, Tetra Tech NUS
Barbara Nwokike, Navy
Bill Warner, Charleston Detachment

Welcome

Navy RAB Substitute Co-Chair Wayne Hansel opened the meeting at 7:06. He welcomed the RAB and others in attendance, and reviewed the agenda. A quorum of community members was present. Lt. Gary Whipple, Penny Felger, Bruce Hossfield, Robert Mackey, Tom Nelson, and Thomas Yost were noted as excused. Co-Chair Wayne Hansel invited members of the public to sign in and join the NTC community mailing list.

RAB News

None.

RAB Administration and Comments

January RAB Meeting Summary: The January meeting summary was approved without comment.

Upcoming Meeting Schedule: The next RAB meeting is scheduled for May 19, 1999, at 7 p.m. in the Winter Park City Commission Chambers.

BRAC Update/Upcoming Activities

Wayne Hansel provided an update on ongoing and upcoming environmental activities at NTC. His full report is summarized in Attachment D with new information since the January 1999 meeting report shown in italics.

RAB Comments and Questions on the BRAC Update (paraphrased)

The RAB members had no comments or questions on the BRAC Update.

Special Topic: Annual Update to the Business Plan for Environmental Cleanup and a Presentation on the Soil Cleanup Activities

Annual Update to the Business Plan for Environmental Cleanup Highlights (full report in Attachment E).

- OU1 – Record of Decision
- OU3 – Interim Remedial Action
- SAs 27 & 33 – Soil removal with no further action
- 175 Tanks removed

- SA2 - Monitor only
- Area C - 6 areas screened
 - OU4 - Laundry still has recirculation well running

Soil Cleanup Activities

Bill Warner from the Charleston Detachment updated the RAB on the status of soil hauling contracts and routes to be used.

There will be 6,900 tons of non-hazardous soil to be moved from NTC to McCoy Annex. This will require 50 trucks a day for 7 days a week. An average of 4 trucks an hour over a 12-hour day will be used. The scheduled time frame is for the end of April into the 1st week of May. The contract for the hauling has not been established but the route is known. All trucks are to enter and exit through NTC Bennett Road gate. The primary route will be NTC gate to Bennett Road, SR 50 (Colonial Drive) to SR 436 (Semoran Blvd.), North Frontage/McCoy Road to Tradeport Drive and then Boggy Creek Road. The alternate route will be NTC gate to Bennett Road, SR 50 (Colonial Drive), SR 436 (Semoran Blvd), SR 408 (Holland East-West Expy), SR 15 (South Conway Road), North Frontage/McCoy Road, Tradeport Drive to Boggy Creek Road.

There will be 9,500 tons (NTC - 5,300 tons and McCoy - 4,200 tons) of non-hazardous soil transported to a Subtitle "D" Landfill. The contract for the hauling has not been established and the landfill is not known. There will be intermittent loads hauled over a 32-day period in late April to late May. There will be 1,000 tons a day for 4 days in early May from SA-8 at NTC and 1,000 tons a day for 4 days in mid-May from SA-17 at McCoy (1,000 tons a day equals 50 truckloads a day, an average of 4 truckloads an hour over a 12-hour day).

125 tons of soil will be transported from NTC to a Hazwaste Landfill. The contract for this work has not been established and the landfill is not yet known. 125 tons is approximately 7 to 8 truckloads over 8 days (average of 1 truckload a day). The work will be performed in the end of April into the 1st week of May.

14,000 cubic yards (775 truckloads) of certified clean fill will be transported to NTC and McCoy. The contract with a soil transporter is not established and the location where the clean fill will come from is not known. The Detachment is expecting that the barrow pit will be within a 50-mile radius of the Base. There will be 580 truckloads (10,500 cy.) from NTC and 195 truckloads (3,500 cy.) from McCoy. The traffic will be intermittent over the month of May. The maximum traffic will be 100 loads a day, but the average will probably be 50 to 70 loads per day. This is an average of 8 truckloads an hour over a 12-hour day. The

average cost is \$90 per truck load (18 cy.) for the clean fill. The fill will be sampled to be sure it is certified clean.

RAB Comments and Questions on the Annual BRAC and Soil Hauling presentations (paraphrased)

What levels have been detected lately by the lake? The levels are still decreasing. The recirculation well is still running. The cleanup levels that are reached will determine what the land reuse will be.

Are there holding tanks at the laundry site? There are settling ponds.

Are there pumps still there? Yes, the recirculation well pumps are still running.

Can the pavement be removed? Yes, the contamination is in the water not in the soil.

Where is the hazardous landfill? Probably not in the State of Florida, not sure if Florida has one.

Other RAB Comments and Questions (paraphrased)

When moving dirt, will it be watered down to prevent dust from the trucks? Yes, this is standard process if dust becomes an issue. The trucks will be covered.

Co-Chair Wayne Hansel concluded the business portion of the meeting and then the meeting was opened to community questions.

Community Questions and Comments (paraphrased)

No community questions were forthcoming, and Co-Chair Wayne Hansel adjourned the meeting at 8:40.

Attachment A

AGENDA

NTC, Orlando Restoration Advisory Board Meeting March 17, 1999, 7:00 p.m.

Welcome/Opening Comments

Navy Co-Chair Lt. Gary Whipple

RAB Administration
And New Business

RAB Co-Chairs

BRAC Update

Wayne Hansel,
BRAC Environmental Coordinator

Special Topic:

Annual Update to the Business Plan for Environmental Cleanup

Feedback on January meeting:

RAB Members

- Soil Remediation Actions; Public Review

Close RAB Business

Community Comments and Questions

Notes:

Attachment B

NTC, ORLANDO RAB MEMBER SIGN-IN SHEET

March 17, 1999

PRINT name clearly

Kay M. Jewell

Blanche Olson

DONALD FULLER

Ann Williams

Phillip A. Goff

Edmund P. Campbell

David Habba

Wayne Hansel

Nancy Maloney

Nancy Rodenberry

HANK BEERS
Hank Beers

Geri Wojcik

Attachment C

Attachment C - 1999 RAB Attendance

[illegible]

Attachment D

UST UPDATE AND STATUS

March 1999

Bldg 129: A SAR has been started for this site. Three monitoring wells (MW-1, MW-2, MW-3) were installed on 1/28/99 and sampled on 3/9/99. *In addition, three soil samples were collected and submitted to a laboratory for 30 day turnaround time. The SAR will be submitted in April.*

Bldg 200: Wells MW-6 and MW-8 exceeded the GCTL for TRPH and dibenz(a,h)anthracene in the previous sampling event (see FDEP letter dated August 24, 1998). Monitoring wells MW-2, MW-3, MW-6, and MW-8 were sampled on 10/16/98. On 1/8/99 a SAR addendum was submitted to FDEP with the sampling results and recommending a MOP for the site. *On 2/16/99, FDEP provided comments to the MOP request, indicating that fewer wells and a less stringent analytical method would be acceptable in the MOP. HLA will submit a letter addendum to the MOP request in late March or early April.*

Bldg 369: FDEP issued a letter on 10/20/98, requesting additional soil sampling. Soil samples were collected on 12/10/98. Laboratory analytical results for soil sample SS-1, collected at 4 to 6 feet below land surface reported Total Petroleum Recoverable Hydrocarbons (TRPH) of 660 mg/kg. This concentration is above the residential SCTL of 350 mg/kg, but is below the industrial. *On 2/17/99, HLA submitted a SAR addendum to FDEP requesting NFA for the site.*

Bldg 2036: First quarter MOP report was submitted to FDEP on 10/2/98. Sampling for the 2nd quarter MOP was conducted on 11/25/98. The second quarter MOP report was submitted to FDEP on 1/8/99 and has been approved. *Sampling for the 3rd quarter was conducted on 2/19/99. During the sampling event, free-floating product was discovered in monitoring well MW-1. HLA will request that the MOP for the site be discontinued and that another remedial strategy be implemented.*

Bldg 2040: Awaiting source removal (summarized in 11/5/98 letter to Navy). Two soil samples were collected on 11/5/98 from the area impacted by petroleum product, assessed during the CAR for the site. The soil samples were submitted to an off-site laboratory for analysis. On 1/8/99, HLA submitted a SAR addendum requesting an NFA from FDEP for the site. FDEP requested that temporary well TW-01 be reinstalled and sampled along with monitoring well MW-01. *The temp well installation and sampling was conducted on 3/9/99.*

Bldg 2273: Laboratory analytical results indicate that the soil stockpile from the installation of utilities at the site will require treatment. A letter/report was submitted to the OPT with a recommendation for disposal on 12/8/98. A cost estimate was prepared and submitted to the Navy on 12/9/98 for the replacement of monitoring wells destroyed by the City of Orlando. *The DET removed soil from the site during the week of 2/22/99. The site is on hold awaiting authorization to install monitoring wells destroyed by the City of Orlando's contractors.*

Bldg 2426: The SAR was completed on 5/29/98. FDEP approved recommendations for the excavation of petroleum-impacted soil and free-product removal on 7/7/98. Site is on hold awaiting remediation. Awaiting source removal (summarized in 11/5/98 letter to Navy). *The petroleum-impacted soil that needs to be excavated and which was documented in a letter to Nick Ugolini on 12/9/98 was removed by the DET during the week of 2/22/99. One monitoring well and several piezometers have been abandoned at this site. A temporary well will be installed and all existing monitoring wells will be sampled to develop a SAR addendum for the site. The SAR addendum will be submitted to FDEP in May.*

Bldg 7107: One monitoring well was abandoned in preparation for soil removal. *The DET removed approximately 5 yd³ of petroleum-impacted soil on 2/20/99. A temporary well will be installed in the excavated area and all existing monitoring wells will be sampled to support a SAR addendum. The addendum will be submitted to FDEP in May.*

Bldg 7125: The site has petroleum-impacted soil. Additional wells will be installed to complete groundwater plume delineation. Free-floating product was discovered in one of the monitoring wells and in a piezometer. Free-product delineation will be conducted as part of this site assessment. The SAR was submitted to FDEP on 1/15/99; HLA recommended active remediation for the site.

Bldg 7171: A SAR has been started for this site. Three monitoring wells were drilled on 1/28/99. Two monitoring wells (source wells OLD-16-01 and MW-02) and a temporary well (TW-01) were abandoned on 2/11/99. *The DET removed the oil water separator and petroleum-impacted soil during the week of 2/22/99.*

Bldg 7174: The SAR was issued on 5/5/98 recommending a RAP; FDEP provided comments approving recommendation for RAP 5/26/98. RAP for Building 7174 was submitted on 9/25/98. After reviewing the site data, natural attenuation is not considered to be an effective remedial alternative for this site. Active remediation will be required in order to meet FDEP requirements.

Bldg 7175: A soil assessment was conducted at this site and the data presented in a letter dated 4/28/97. HLA recommended the excavation of petroleum-contaminated soil prior to conducting a site assessment. Awaiting source removal (summarized in 11/5/98 letter to Navy). Two monitoring wells were abandoned 2/11/99. *The DET excavated and disposed of petroleum-impacted soil during the week of February 22, 1999. A SAR will be submitted to FDEP in June.*

Bldg 7182: Three monitoring wells were installed and sampled on the week of 7/6/98. Site assessment activities initiated at Building 7182 were completed for the suspected petroleum contamination; however, chlorinated solvents were found at concentrations above the State of Florida GCTLs. A SAR was submitted under Chapter 62-770 FAC on 10/30/98 requesting an NFA for petroleum constituents and recommending additional assessment for the chlorinated solvents under the IR program. *On 2/9/99, FDEP approved the SAR with the recommendation for NFA, but requested that the chlorinated solvents be investigated under the IR program.*

Bldg 7241: The Remedial Action Plan (RAP) for Building 7241 was submitted to FDEP on 8/10/98 and was approved by FDEP on 8/22/98. The site is on hold until the Navy removes soil and free-product from the site. A SARA will be completed following Navy actions (summarized in 11/5/98 letter to Navy). Two monitoring wells and several piezometers were abandoned 2/11/99. *The DET excavated petroleum-impacted soil on 2/20/99.*

Note: HLA proposes to install temporary monitoring wells (instead of permanent wells) in excavated areas at sites where a SAR has been completed (Bldgs 2426, 7107, and 7142) and sample the temporary wells to seek NFA for those sites. The use of temporary wells will provide data of sufficient quality to demonstrate whether or not groundwater criteria are being met and can be installed economically without conventional drilling equipment.

IR UPDATE AND STATUS

March 1999

OPERABLE UNITS

OU 2: Additional hand auger borings, augmented with test pits, were installed to (1) provide additional soil thickness data in the southern wooded area, and (2) verify the GPR soil thickness data on the golf course. In addition, the locations of the four b(a)p "hot spots" were located.

OU 3: Final RI report response to comments were submitted on 11/12/98. *The final RI report is being prepared, incorporating regulator comments. The report will be issued as final along with the FS when it has been finalized.*

The draft FS report for OU 3 was submitted to the Navy on 11/24/98. *HLA received comments from FDEP for the draft FS report on 2/9/99 and from EPA on 2/11/99. HLA response to comments were submitted to the OPT on 3/12/99.*

A supplementary round of groundwater sampling is being conducted by ttnus in March to provide post-soil removal ('97 IRA) data to evaluate anticipated changes in groundwater contamination. Additional soil removals by the DET are slated for April/May '99.

OU 4: *HLA issued an IRA performance monitoring report covering the period from March 15 through August 31, 1998. This 2nd quarterly report provided analytical results, Troll data, a summary of system modifications, and data interpretation.*

FDEP comments to the OU4 RI were received in January; EPA comments were received in December. HLA is preparing a response to regulator comments. Although several comments suggest that certain media (such as the lake and surface soil) may not be adequately characterized, HLA believes otherwise, and we do not anticipate the need for further sampling. *These responses will be provided to the OPT in March.*

HLA continues to plan for the chemical oxidation pilot study. *The fire department will soon visit Building 1100 to confirm suitability for KmnO4 storage. HLA will also collect air samples within the building to investigate the potential for airborne asbestos. The variance application for KMnO4 injection was submitted to FDEP in February. Initial comments were received from David Grabka. Shortly thereafter, David also provided FDEP comments to a KmnO4 variance application submitted by IT Corporation. HLA is currently revising the OU 4 variance application to address these comments.*

HLA has also provided the Charleston Shipyard Detachment with the analytical results for OU 4 soil scheduled for removal.

GROUPS IV AND V:

SA 35: Soil removal to be conducted by Environmental Detachment Charleston (DET). IRA Workplan with HLA recommendations for soil removal was issued in September 1998. Workplan was revised to address FDEP concerns about arsenic in surface soils. A fact sheet has been prepared to support the IRA.

SA 36: Three additional wells have been installed, followed by groundwater sampling of new wells and eight existing wells for volatiles and natural attenuation parameters. No chlorinated solvents were detected in samples from the deep wells. A site screening report summarizing investigation activities to date is in preparation.

SA 37: Soil removal to be conducted by DET; well installation to follow soil removal. IRA Workplan with HLA recommendations for soil removal was issued in September 1998. A fact sheet has been prepared to support the IRA.

SA 42: Soil removal to be conducted by DET. A fact sheet has been prepared to support the IRA.

OTHER STUDY AREAS:

SA 2: HLA has installed two additional wells, and sampled the new wells and 19 existing wells for volatiles and natural attenuation parameters. *HLA submitted response to regulator comments at the OPT meeting 6/98 and incorporated those comments into the text and figures of the final report. The recent analytical data was incorporated into the Final Site Screening report, submitted on 3/10/99.*

SA3: *Sampling of well OLD-03-04 was discontinued 12/98 as PCE had fallen below the FL MCL for 2 consecutive months. The most recent round of sampling (2/23/99) showed that PCE in well OLD-03-01 had decreased to 2.9 µg/l. One more round below the MCL will remove the groundwater restriction from SA 3.*

SA 17: IRA Workplan with HLA recommendations for soil removal was issued 9/98 and was revised 1/99 following receipt of analytical results from 12 supplemental surface soil samples. A fact sheet has been prepared to support the IRA. The final draft site screening report was submitted for review 10/98. EPA comments received 12/9/98, and DEP comments received 1/22/99. *HLA submitted response to comments on 2/22/99 and has incorporated all comments into the final site screening report. The final site screening report was issued 3/4/99.*

SA 23: IRA Workplan with HLA recommendations for soil removal was issued in mid-September. A fact sheet has been prepared to support the IRA. *A final site screening report will be issued following the IRA soil removal by the DET.*

SAs 39&40: IRA Workplan with HLA recommendations for soil removal was issued in mid-September and was revised 1/99 following receipt of analytical results from 3 supplemental surface soil samples collected in SA 40. A fact sheet has been prepared to support the IRA. *A final site screening report will be issued for both SAs following the IRA soil removals by the DET.*

SA 52: HLA has finalized Environmental Site Screening Report recommending continued monitoring of groundwater until contaminant levels meet FDEP GCTLs and submitted to OPT in 1/99. *HLA received FDEP comments 2/10/99, and they were discussed at the February OPT meeting. Response to comments were issued 3/12/99. FDEP comments have been incorporated into the final site screening report, and the report will be issued 3/23/99.*

SA 54: Draft site screening report on the two background surface soil sample locations (ORS00901 and ORS01601) was submitted to the OPT for review on 12/2/98. LT Whipple reports that he Faxed excerpts from the report to planners and environmental protection specialist at the 81st ARCOM in Birmingham.

They understand issues and said they would get back to him. No word yet, although they do not seem overly concerned with possibility of land use restrictions.

STUDY AREA STATUS:

55 study areas have been screened¹

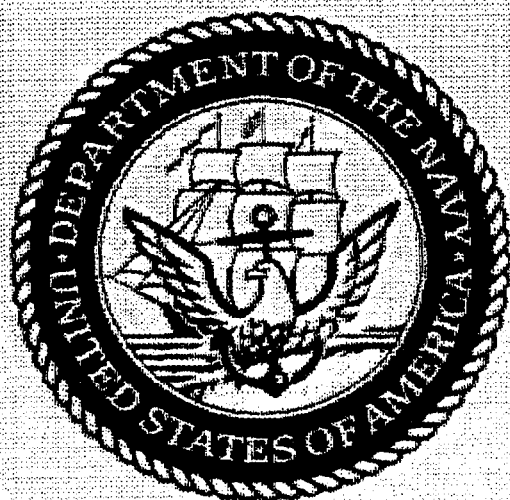
- ⇒ 38½ SAs have been submitted as final and approved for NFA: 1, 3, 4, 5, 6, 7, 8[WWTP], 10, 11, 15, 16, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 38, 41, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 55
- ⇒ 2 SA reports required (36, 52)
- ⇒ 4½ SAs became OUs (8 [greenskeeper storage] & 9 [OU3]; and 12, 13, and 14 [OU4])
- ⇒ 7 SAs require removal actions and/or additional screening (18, 23, 35, 37, 39, 40 and 42).
- ⇒ 1 SA reports issued final draft in November (54). SA 54 being reviewed by FDEP and EPA.
- ⇒ 2 SA reports have been submitted final and are ready for BCT signature (2 and 17).

¹ includes SA 54 (background surface soil locations S009 and S016), and SA 55, Bldg. 1104 (alleged PCB storage)

Attachment E

(Information Repository Copy only)

Base Realignment and Closure **Business Plan**



For
Naval Complex Orlando, FL
-Naval Hospital Orlando
-Naval Training Center Orlando

NAVAL TRAINING CENTER ORLANDO
Orlando, Florida

**BUSINESS PLAN
FOR
ENVIRONMENTAL
CLEANUP**



DEVELOPED BY THE ORLANDO PARTNERING TEAM

MARCH 1999

CONSENSUS STATEMENT

BASE REALIGNMENT AND CLOSURE BUSINESS PLAN NAVAL TRAINING CENTER ORLANDO ORLANDO, FLORIDA

This Base Realignment and Closure (BRAC) Business Plan meets the intent of the Naval Facilities (NAVFAC) alternative to the annual BRAC Cleanup Plan update requirement, as outlined in COMNAVFACENGCOM letter 5090 41/CM/950379, dtd. 14 December 1995.

The undersigned BRAC Cleanup Team (BCT) has developed this business plan to serve as an interim tool to guide the cleanup of Naval Training Center (NTC) Orlando in accordance with our mission to environmentally restore NTC Orlando for transfer in an expeditious and cost effective manner.

Wayne Hansel

BRAC Environmental Coordinator
Department of the Navy

Nancy Rodriguez

Remedial Project Manager
US Environmental Protection Agency, Region 4

David Grabka

Remedial Project Manager
Florida Department of Environmental Protection

FOREWORD

The Department of the Navy has instituted several programs to address the requirements of the Defense Base Closure and Realignment Act (BRAC) of 1990. BRAC Cleanup Teams (BCTs) have been assembled to address the multitude of issues surrounding base closure and to enhance environmental decision making at BRAC installations where property will be available for redevelopment by the community. This team approach is intended to foster partnering, accelerate the environmental cleanup process, and expedite timely, cost-effective, and environmentally responsible disposal and reuse decisions. The BCT for the Naval Training Center Orlando became a facilitated partnering team and expanded to include Navy BRAC contractors with support from Tier II personnel and the Base Transition Coordinator. The team renamed itself the Orlando Partnering Team (OPT) to emphasize the relationship between the team members, and this name is used throughout this document.

One of the OPT tasks is the preparation of a BRAC Cleanup Plan (BCP) for NTC Orlando. A BCP is a macro-level management tool encompassing all environmental issues related to base closure. The emphasis is on accelerating cleanup efforts to expedite conveyance of Federal property to surrounding communities for redevelopment. On an annual basis, the BCP must be updated with the latest status on environmental conditions, funding constraints, and changed community priorities. NAVFAC Headquarters has modified the requirement for the annual update by allowing teams to submit abbreviated "Business Plans" in lieu of the full BCP update.

A full update to the BCP for NTC Orlando was issued in March 1996. The update provided detailed information on site history, background data and maps, environmental conditions, compliance issues, ongoing Navy Installation Restoration Projects, and implementation strategies. In 1997 and 1998, the BCT prepared a Business Plan that provided the status of (1) transfer and reuse activities, (2) the restoration program, (3) major issues addressed by the OPT, (4) "success stories" describing actions taken to expedite the restoration work, and (5) the current restoration work schedule. This Business Plan follows the same format.

EXECUTIVE SUMMARY

NTC Orlando is undergoing a phased closure with the Recruit Training Command (RTC) and Naval Hospital closing in March 1995, the Service School Command (SSC) closing in November 1996, and the Navy Nuclear Power Training Command closing in December 1998. Operational closure is scheduled for April 30, 1999. The Record of Decision (ROD) for the Environmental Impact Statement (EIS) was signed on November 15, 1996. The Economic Development Conveyance (EDC) submitted by the City of Orlando Community Redevelopment Agency (CRA) in September 1996 is being negotiated. Public Benefit Conveyances (PBC) to the Department of Interior and Federal Aviation Authority (FAA) were submitted and approved by their respective agencies in FY-97. Most of the property is scheduled to be leased or transferred by April 1999.

In order to conduct the environmental investigations in an orderly manner, 53 study areas were identified and grouped based on location and closure schedule. Fifteen study area screening investigations were started in FY-95, 25 were started in FY-96, and the final 13 were started in FY-97. Two new study areas were identified in 1998 and added to the list. Study Area 54 encompasses two surface soil sampling locations from the Background Sampling Report. Study Area 55 is the PCB Storage Building (Building 1104) at Area C. The tank systems were also grouped based on their location and closure schedule. Of the 276 tanks removed to date, 30 have been contaminated and required site assessments. Of the remaining tanks to be removed, 27 are scheduled to be removed in February 1999, and 5 will remain in place. An asbestos survey received in October 96 has identified 77 buildings that have damaged friable asbestos. Of those buildings, 21 were abated in FY-97 because these are scheduled for reuse.

The OPT has initiated many time saving and cost reducing processes while completing the environmental assessments at NTC Orlando. We continue to save time with desktop reviews and have streamlined the paperwork process further by using Letter Reports and Tech Memos to distribute data to the team expeditiously. Conference calls and e-mail are also used to enhance communications so issues can be quickly addressed and resolved. Innovative technologies and presumptive remedies are being used where appropriate to speed-up the Operable Unit and site screening investigations. The Cleanup Review Tiger Team (CURTT) is used as a resource to provide valuable expertise in the evaluation of sites and the selection of remedial actions. As a minimum, all of our projects are reviewed by Southern Division (SOUTHDIV) technical section to insure that the experts available through the State, EPA, and Navy are utilized to their fullest potential. Getting the experts involved upfront helps the OPT make better decisions which will reduce the cost of the environmental assessments and remedial actions.

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APPENDICES

OPERABLE UNIT AND STUDY AREA TABLE.....	A
ADDENDUM TO THE BRAC CLEANUP PLAN GUIDEBOOK SEPTEMBER 1996	B

GLOSSARY

AST	aboveground storage tank
BCP	BRAC Cleanup Plan
BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
CAR	Contamination Assessment Report
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CLEAN	Comprehensive Long-term Environmental Action, Navy
CPT	Cone Penetrometer Testing
CRA	Community Redevelopment Agency
CURTT	Cleanup Review Tiger Team
DPT	Direct Push Technology
EBS	Environmental Baseline Survey
ECP	Environmental Condition of Property
EDC	Economic Development Conveyance
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Authority
FDEP	Florida Department of Environmental Protection
FOSL	Finding of Suitability to Lease
FOST	Finding of Suitability to Transfer
GOAA	Greater Orlando Aviation Authority
GPS	Global Positioning Satellite
IDW	Investigative Derived Waste
IR	Installation Restoration
IRA	Interim Remedial Action
MOP	Monitoring Only Plan
NFA	No Further Action
NTC	Naval Training Center
NAVFAC	Naval Facilities
OPT	Orlando Partnering Team
OU	Operable Unit

OWS	Oil Water Separator
OWSAR	Oil Water Separator Assessment Report
PBC	Public Benefit Conveyance
PCB	polychlorinated biphenyls
PCE	perchloroethylene
PWO	Public Works Office
RAB	Restoration Advisory Board
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RTC	Recruit Training Command
SA	Study Area
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SOV	Soil Organic Vapor
SSC	Service School Command
TCAR	Tank Closure Assessment Report
UST	underground storage tank

INTRODUCTION

NTC Orlando is undergoing a phased closure. The Recruit Training Command (RTC) and Naval Hospital closed in March 1995, the Service School Command (SSC) closed in November 1996, and the Navy Nuclear Power Training Command is scheduled for closure in December 1998. The training center is scheduled to cease operations on April 30, 1999. The Orlando Partnering Team will continue environmental assessment and remediation on 3 Operable Units (OUs) and 12 Study Areas (SAs). Over 87% of the total 2075 acres are environmentally suitable for transfer. All remedial actions are currently scheduled to be in place by the end of 2000. Long Term Monitoring (LTM) may continue on some tank and Installation Restoration (IR) sites.

STATUS OF RESTORATION PROGRAM

The environmental restoration program is divided into three areas:

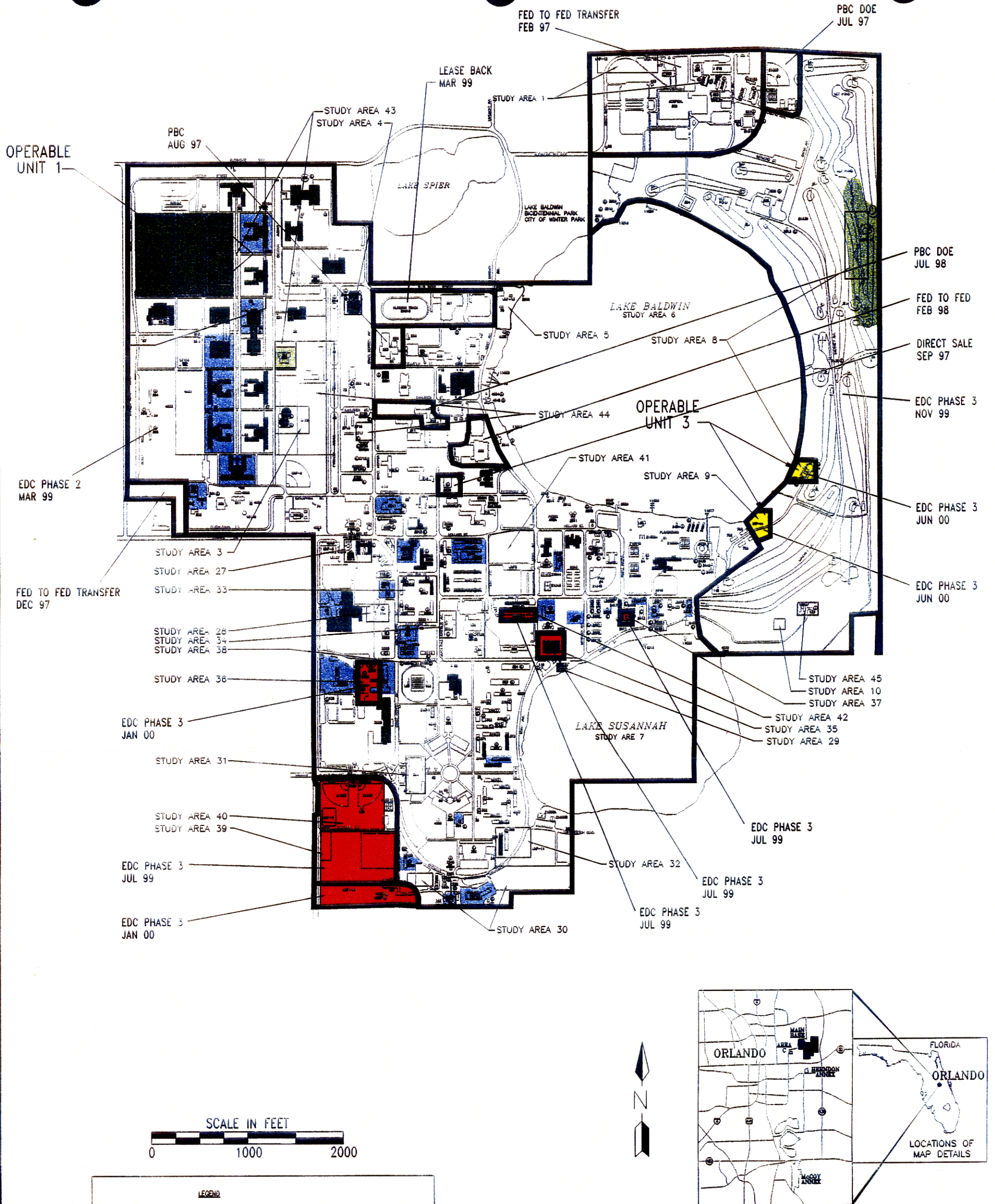
- ⇒ The IR Operable Unit investigations and Study Area screening
- ⇒ Underground Storage Tank (UST), Aboveground Storage Tank (AST), and Oil/Water Separator (OWS) removals, assessments, and remediation
- ⇒ Lead-based paint and asbestos compliance surveys and abatement

I. Installation Restoration OU and Study Area Screening

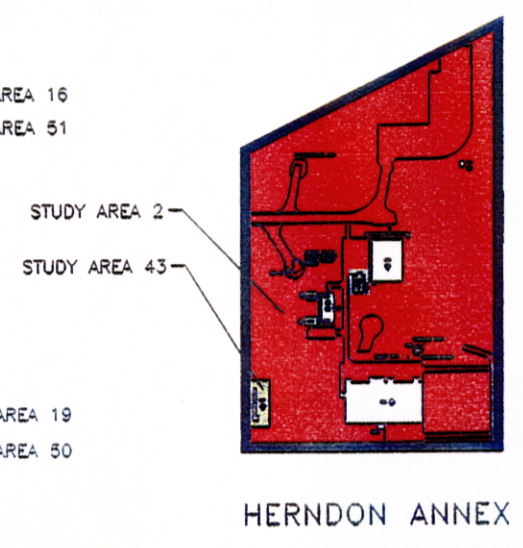
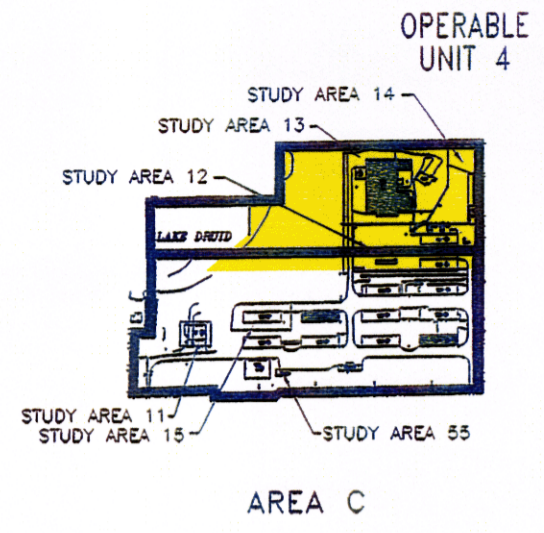
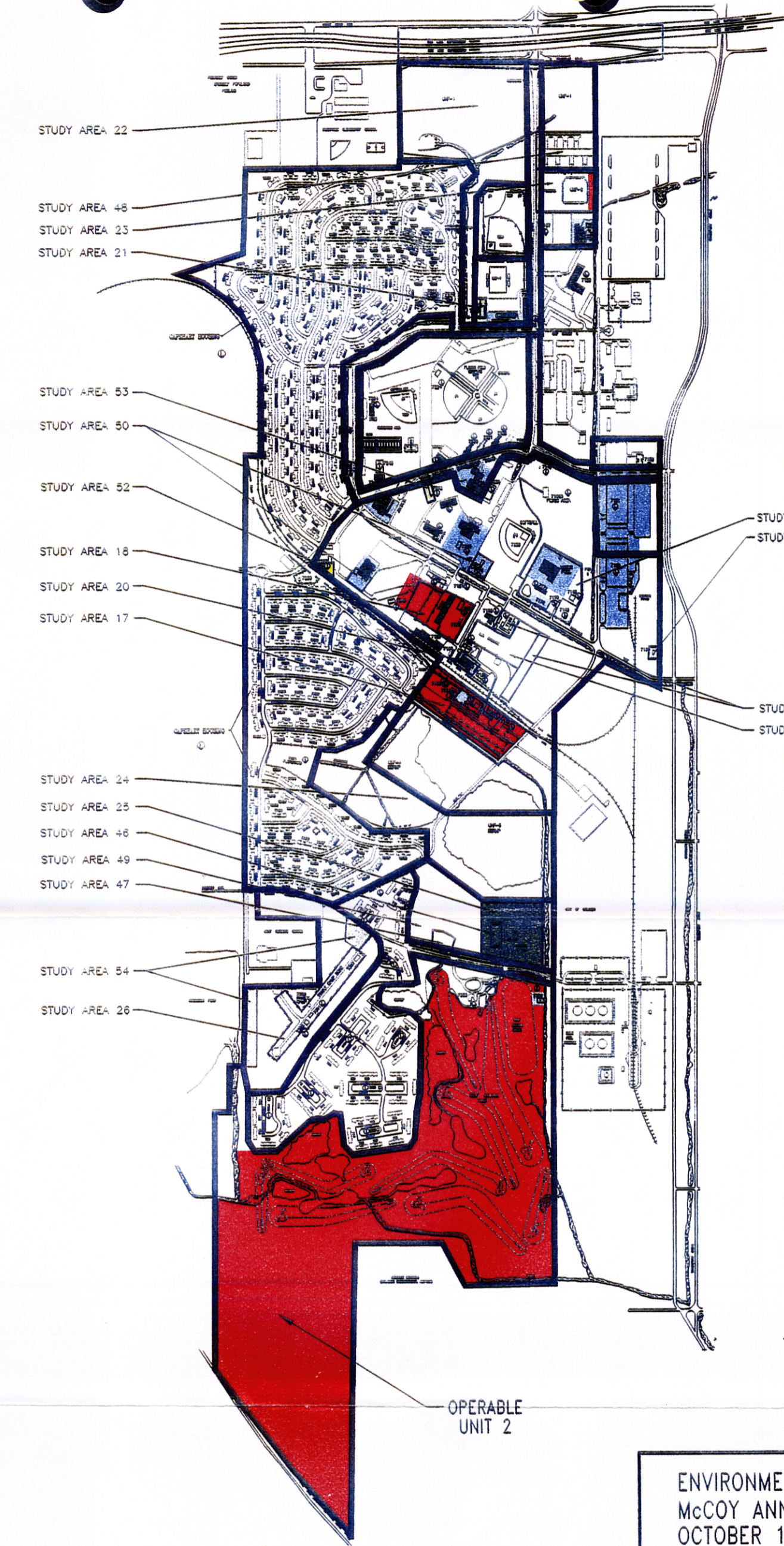
In order to conduct the environmental investigations in an orderly manner, 55 study areas were identified and grouped based on location and closure schedule. Fifteen study area screening investigations were started in FY-95, 25 were started in FY-96, and 13 were started in FY-97. Two new study areas were identified in FY-98 and added to the list. Operable unit and study area locations are shown in Figures 1 and 2. The current status of the 55 study areas is given below:

Main Base = 28 Study Areas

- ☐ 19 No Further Actions
- ☐ 1 Groundwater Restriction (SA 3)
- ☐ 2 Became OU3
- ☐ 6 Assessment work is ongoing



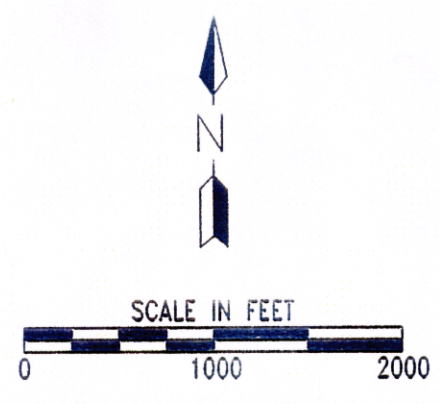
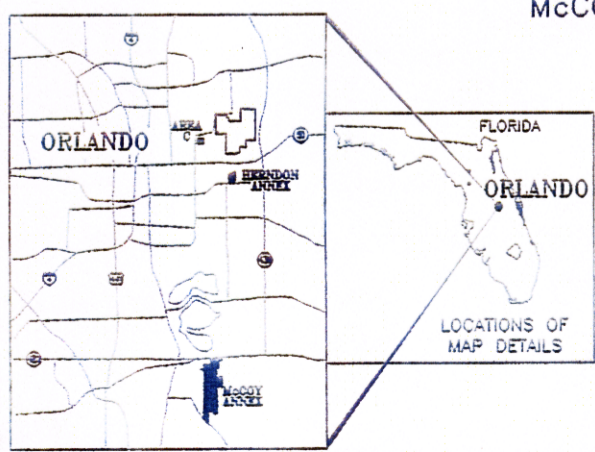
00402 FRI V



LEGEND

	1. - AREAS WHERE NO RELEASE OR DISPOSAL OF HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS HAS OCCURRED (INCLUDING NO MIGRATION OF THESE SUBSTANCES FROM ADJACENT AREAS).
	2. - AREAS WHERE ONLY RELEASE OR DISPOSAL OF PETROLEUM PRODUCTS HAS OCCURRED.
	3. - AREAS WHERE RELEASE, DISPOSAL, AND/OR MIGRATION OF HAZARDOUS SUBSTANCES HAS OCCURRED, BUT AT CONCENTRATIONS THAT DO NOT REQUIRE A REMEDIAL ACTION.
	4. - AREAS WHERE RELEASE, DISPOSAL, AND/OR MIGRATION OF HAZARDOUS SUBSTANCES HAS OCCURRED, AND ALL REMEDIAL ACTIONS NECESSARY TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT HAVE BEEN TAKEN.
	5. - AREAS WHERE RELEASE, DISPOSAL, AND/OR MIGRATION OF HAZARDOUS SUBSTANCES HAS OCCURRED, AND REMOVAL OR REMEDIAL ACTIONS ARE UNDER WAY, BUT ALL REQUIRED REMEDIAL ACTIONS HAVE NOT YET BEEN TAKEN.
	6. - AREAS WHERE RELEASE, DISPOSAL, AND/OR MIGRATION OF HAZARDOUS SUBSTANCES HAS OCCURRED, BUT REQUIRED ACTIONS HAVE NOT YET BEEN IMPLEMENTED.
	7. - AREAS THAT ARE NOT EVALUATED OR REQUIRE ADDITIONAL EVALUATION.
	BOUNDARY
	BRAC
	BUILDING WITH KNOWN OR SUSPECT LEAD-BASED PAINT (LBP)

ENVIRONMENTAL CONDITION MAP
McCOY ANNEX, HERNDON ANNEX, AND AREA C
OCTOBER 1998
FIGURE 2



BRAC CLEANUP PLAN

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

McCoy Annex = 20 Study Areas

- ☐ 11 No Further Actions
- ☐ 1 Transfer to Tanks Program (SA 16)
- ☐ 3 Land Use Restriction (SA 21, SA 25 and SA 50)
- ☐ 4 Assessment work is ongoing
- ☐ 1 Groundwater Restriction and Monitoring (SA 52)

Herndon Annex = 2 Study Areas

- ☐ 1 No Further Action (SA 43 - also counted among the Main Base study areas)
- ☐ 1 Decision to be made (SA 2)

Area C = 6 Study Areas

- ☐ 1 No Further Action
- ☐ 3 Became OU4
- ☐ 1 Transfer to Tanks Program (SA15)
- ☐ 1 Assessment work is ongoing (SA 55)

For specific information on each study area please refer to the table included in Appendix A.

The OPT has identified four operable units which are being assessed:

Main Base Landfill (OU1)

The OPT has worked closely with the City of Orlando Reuse Authority and Redevelopment Agency to insure that the proposed plan for OU 1 and the intended reuse are compatible. The final Remedial Investigation and Feasibility Study (RI/FS) Report for the North Grinder Landfill was completed in December 1996. The OPT has agreed that the existing cover is adequate as long as the area is restricted to recreational use. A draft Proposed Plan was prepared and presented to the public in May 1997. The Record of Decision (ROD) for OU1 included long-term monitoring and institutional controls. The Environmental Protection Agency (EPA) and Florida Department of Environmental Protection (FDEP) concurrence letters were received in December 1997. It was critical that the ROD be completed in a timely manner because this area is scheduled for transfer as part of the EDC. Typically it can take 5 to 10 years to reach a ROD for a landfill. By accelerating the RI/FS schedule and using a presumptive remedy we have reduced the time required to complete our assessment and get to a ROD in less than three years. LTM activities started in March 1998 and will continue for a minimum of 3 years.

McCov Annex Landfill (OU2)

OU 2 at NTC Orlando is presently a golf course located over a former landfill. The first of three phases of an RI/FS for the OU was performed in 1997 and 1998. The Phase I fieldwork began in May 1997 with a geophysics study (magnetometry, terrain conductivity, ground penetrating radar) to (1) determine the "footprint" of the landfill, (2) locate "hot spots" of ferrous and conductive wastes, and (3) characterize the landfill cover thickness and continuity.

The geophysics study was followed with collection of surface soil, surface water, and sediment samples, which were analyzed for organic, inorganic (metals), and radioactive contamination. In addition, the cover material was subjected to geophysical analyses to evaluate its suitability as a cover material. A soil gas program was performed to characterize volatile constituents, including methane which may still be problematic at the landfill. A near-surface screening method that directly collects and identifies a organic constituents was used in the study. The last of the field activities performed during this period was collection of groundwater samples around the boundary of the landfill using a Direct Push Technology (DPT) rig. Contaminated groundwater flowing from the site was found in four separate locations.

Phase II was completed in 1998 and included: (1) further delineation of the western boundary of the landfill, (2) delineation of contamination plumes using DPT, (3) installation of permanent wells and piezometers to determine more accurately the levels of contamination in and the direction of flow of the groundwater, and (4) the completion of a Preliminary Risk Assessment to determine if the golf course can be leased. The final phase, which is the preparation of a Feasibility Study, will be completed in 1999.

OU3 and Study Area 52 - Pesticide Storage and Mixing Areas

Interim Remedial Actions (IRAs) were completed during the summer of 1997 to remove contaminated soils at OU 3 and Study Area 52. The removal was done by the Charleston Detachment. After the contaminated soil was removed, an RI/FS was started on OU 3 to determine if any further remedial actions are necessary. The RI for OU 3 was completed in 1998 and the FS is currently under review. Wells were also installed at Study Area 52 to determine if any groundwater remediation will be necessary. The OPT has decided to monitor the pesticide levels in the groundwater at SA 52 before deciding if further remedial actions are necessary.

Area C Laundry (OU4)

An IRA to gain control of the pathways and stop the release of PCE to Lake Druid has been undertaken at this operable unit. Fieldwork to determine the extent of contamination between the lake and laundry has been completed. With the assistance of SOUTHDIV's technical section and the CURTT team, in-well sparging was selected as the remedial action to be implemented. In-well air sparging will stop the release to the lake without removing the water from the ground, thus avoiding high Investigative

Derived Waste (IDW) disposal cost and reducing the impact on the ecological systems relative to other treatments considered. It may also be incorporated into the final remedy. The design of the remedial system was completed and construction started in November 1997. The system became operational in December 1997. Both recirculation wells were taken down for maintenance to remove iron fouling and biological growth. The contractor, with approval of the OPT, modified treatment system equipment by installing equalization tanks, new pumps, instrumentation; adding sequestering agent; and revised piping configuration. The OU 4 RI was completed in 1998 and the FS is currently under review.

Interim Remedial Actions

IRAs were completed at SA 27 and SA 33 to remove contaminated soil. The OPT has approved no further action at these two SAs and are now available for transfer. Also, the Navy awarded a contract to the Charleston Detachment to conduct soil removal at SAs 17, 18, 23, 35, 37, 39, 40 and 42, and OUs 3 and 4.

II. UST and AST Removal, Assessments and Remediation

Currently there are 32 tank system still in place. All but 3 USTs located at Building 109 of Main Base and 2 ASTs located at McCoy Golf Course are schedule to be removed in February 1999. Assessments will be completed after tank removals and those showing any contamination will be remediated. The tanks remaining after February of 1999 will be removed after the base closes in April 1999. The current status of the more than 300 tank systems and OWS assessments is listed below:

Main Base: 25 tanks (9 USTs, 16 ASTs) are still in place.

Tanks

- ☐ 197 Tanks removed
- ☐ 183 Tank Closure Assessment Reports (TCARs) clean closure approved
- ☐ 14 Site Assessment Reports (SAR)
 - ◆ 8 No Further Actions (NFA)
 - ◆ 2 Monitoring Only Plans (MOP)
 - ◆ 1 Interim Remedial Action
 - ◆ 3 Not yet completed
- ☐ 40 Tank assessments completed.

site assessment to determine if any further remedial actions are necessary showed some contamination still left on the site. As result, SOUTHDIV awarded a contract to install an air sparging system to remediate the groundwater.

III. Compliance Surveys and Abatement Status

Surveys for lead-based paint and asbestos were completed in FY-95 and FY-96. Lead-base paint abatement will be completed by the contractor who refurbishes the Capehart housing units. These costs were deducted in the EDC. Asbestos abatement was completed in FY-97 only on buildings scheduled for reuse.

Asbestos Survey and Abatement

An asbestos survey received in October 96 has identified 77 buildings that have damaged friable asbestos. Of those buildings, 21 were abated in FY-97 because these are scheduled for reuse. The remaining 58 buildings are scheduled for demolition and it will be the City's responsibility to abate the asbestos before demolition. The Navy has placarded the rooms or spaces to indicate that they contain damaged friable Asbestos and should have restricted access prior to demolition. All personnel entering such spaces will need to be asbestos-trained and wear proper personal protective equipment at all times.

STATUS OF TRANSFER AND REUSE

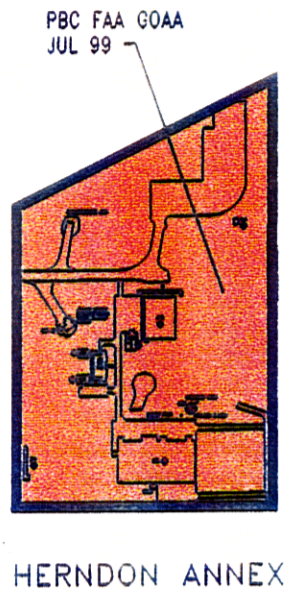
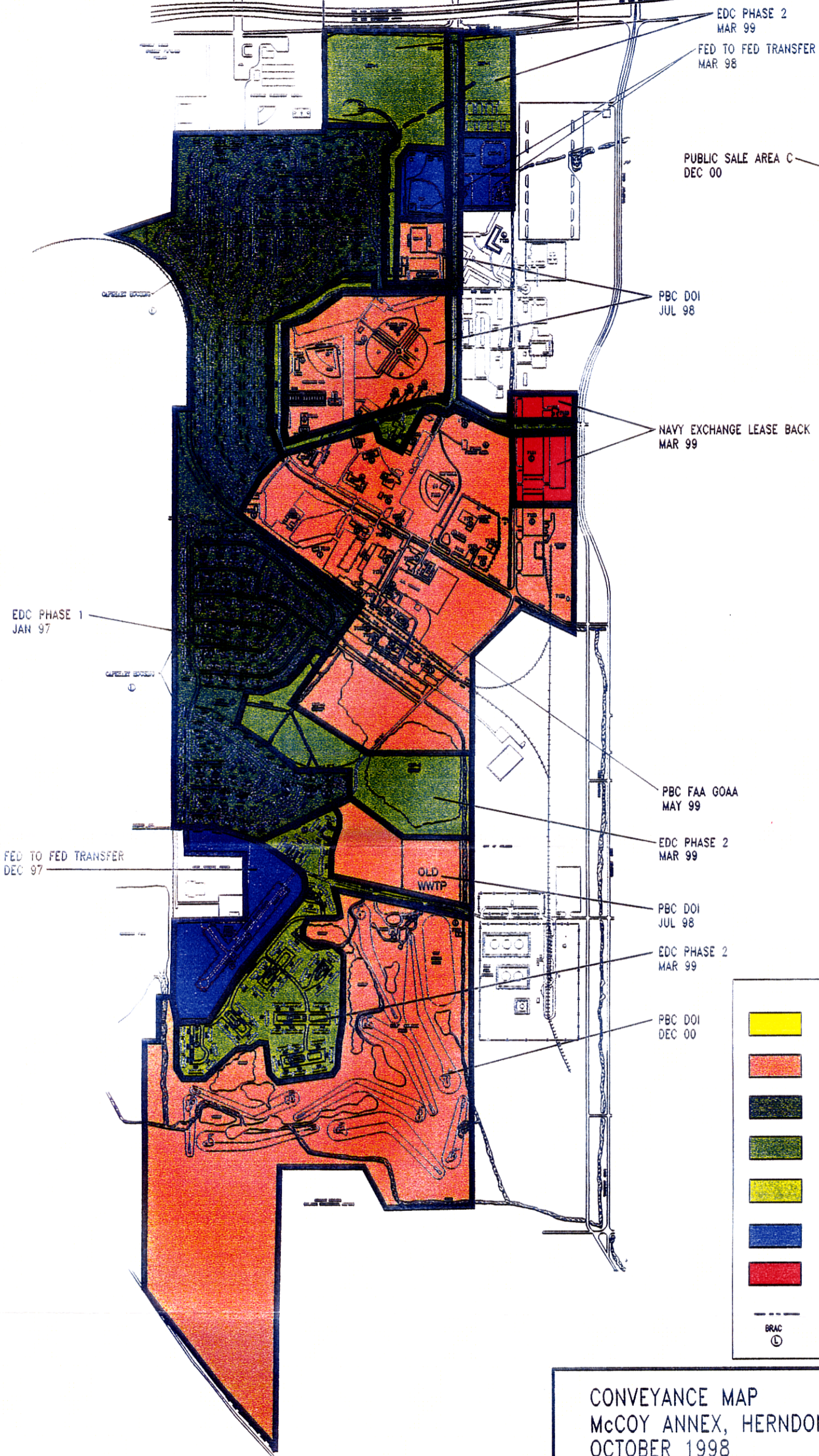
In FY-95, the Environmental Baseline Survey (EBS) and the Orlando Reuse Plan were finalized. The NTC is to be redeveloped into a commercial center, community parks, residential, educational, and light industrial facilities. Potential lessors or buyers that fit the reuse plan are being sought. If the property is not ready to be transferred in accordance with the Orlando Reuse Plan by April 1999, a caretaker office will be established by Southern Division Naval Facilities Engineering Command (SOUTHDIR).

The ROD for the Environmental Impact Statement was signed on November 15, 1996. The Economic Development Conveyance (EDC) submitted by the City of Orlando Community Redevelopment Agency (CRA) in September 1996 is under negotiation. Public Benefit Conveyances (PBC) to the Department of Interior and the Federal Aviation Authority (FAA) were submitted and approved in FY-97. Most of the property is scheduled to be leased or transferred by April 1999.

The FY-97 Defense Authorization Act included a provision that resulted in modification of the Community Environmental Response Facilitation Act (CERFA) categories for the Environmental Condition of Property (ECP). A copy of the Addendum to the August 1996 BRAC Cleanup Plan Guidance reflecting the ECP modifications is included in Appendix B. Areas where petroleum products and hazardous materials were stored but no release or disposal occurred were changed from Category Blue to White and areas where petroleum products were released were changed from Category Red to Blue. New color-coded maps for Main Base, McCoy and Herndon Annexes, and Area C are shown in Figures 3 and 4.

The environmental condition of NTC Orlando determines which parcels are environmentally suitable for transfer to the community. The environmental condition of the 2075 acres at NTC Orlando is as follows:

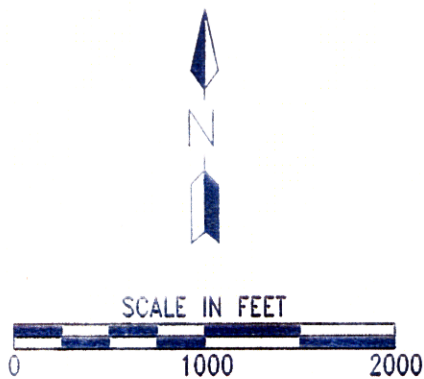
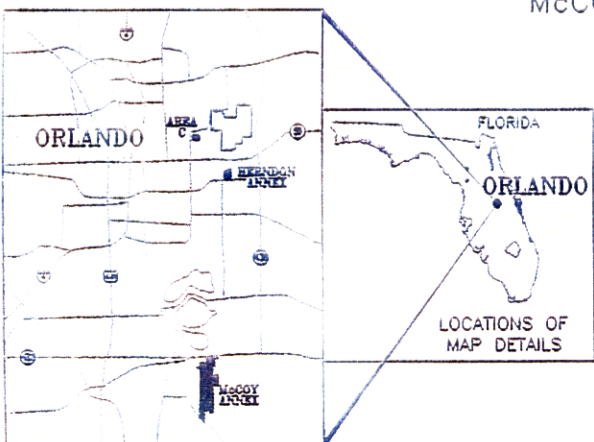
<u>Classification</u>	<u>Acreage</u>	<u>%</u>
1 / White	1,635	78.8
2 / Blue	65	3.1
3 / Light Green	18	0.9
4 / Dark Green	68	3.3
5 / Yellow	22	1.0
6 / Red	261	12.6
7 / Gray	6	0.3



LEGEND

	DIRECT SALE
	PBC
	EDC PHASE 1
	EDC PHASE 2
	EDC PHASE 3
	FED TO FED TRANSFER
	LEASE BACK
	BOUNDARY
	BRAC
	BASE REALIGNMENT AND CLOSURE BUILDING WITH KNOWN OR SUSPECT LEAD-BASED PAINT (LBP)

CONVEYANCE MAP
McCOY ANNEX, HERNDON ANNEX, AND AREA C
OCTOBER 1998
FIGURE 4



BRAC CLEANUP PLAN

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

The following is a list of completed or pending real-estate actions:

- The Naval Hospital (45 acres) was transferred to the Veterans Administration in February 1997.
- Building 325 (3.3 acres) has been turned over to Customs for 2 years, and the paper work transferring the property was finalized in February 1998.
- Herndon Annex (54 acres) was leased to the City of Orlando in December 1996.
- The 1.5-acre Credit Union parcel was sold to the Credit Union in September 1997.
- An interim license for the RTC area (200 acres) was given to the City of Orlando on February 1, 1997, to allow them to use this area. A Finding of Suitability to Lease (FOSL) for the RTC area was signed on February 12, 1997. The lease with the City of Orlando was signed on August 29, 1997.
- Capehart Housing (214 acres) was transferred to the City of Orlando on September 18, 1997.
- PBC to the Florida Department of Correction (5 acres) - The FOST was completed on May 10, 1997. Buildings 253 and 255 were transferred in August 1997 and Building 310 was transferred on July 15, 1998.
- PBC Ball Fields (5 acres) - The FOST was completed in March 1997 and the property transferred to the Orange County Schools in July 1997.
- Federal to Federal transfer to the Army Corps of Engineers for the Army Reserve (1.9 acres at Main Base and 20 acres at McCoy Annex) was completed in December 1997.
- PBC to the Department of Interior for Parks (50 acres at McCoy Annex) - The FOST was completed on June 30, 1997 and the property was transferred in July 1998.
- Federal to Federal transfer to the Florida Army National Guard (15.5 acres at McCoy Annex) was completed on March 17, 1998.

The majority of the property at NTC Orlando will be leased or transferred by April 1999. Figures 3 and 4 show the parcel locations. The following FOSTs and FOSLs have been or are being prepared:

- **EDC FOST North Main Base and North McCoy (640 acres)**
The FOST and EBS report was completed in April 1998 and the actual transfer is scheduled for April 1999. The Navy is working on an Addendum to the FOST and EBS to address the arsenic issue at the Main Base Golf Course.
- **EDC FOST South Main Base (410 acres)**
The FOST and EBS report was completed in April 1998 and the actual transfer is scheduled for April 1999. The Addendum to the FOST and EBS was completed in November 1998 updating the status on petroleum tanks and Study Area 27.
- **Air National Guard FOST (20 acres)**
The FOST and EBS report was completed in February 1998 and the property was transferred in March 1998.
- **PBC FAA Greater Orlando Aviation Authority (GOAA) FOST (224 acres) – McCoy Annex parcel and Herndon Annex**
The draft FOST and EBS report for the McCoy Annex is being produced. The FOST and EBS report for Herndon Annex is on hold pending the review of the site screening report.
- **PBC Parks Parcel (200 acres) - McCoy Golf Course and Wooded Area.**
The FOSL for the McCoy Golf Course (105 acres) was started in 1998. The actual transfer of the property (200 acres) will occur once the landfill investigations and remedial actions are completed.
- **Area C Public Sale (45 acres)**
The FOST for the Warehouse and the Laundry parcel will be completed once the RI/FS and all remedial actions are completed.

MAJOR ISSUES

The following are the major issues which have been addressed by the OPT in FY-98.

Institutional Controls

Institutional controls are a method of protecting human health and the environment while reducing cost. Institutional controls are mechanisms to restrict site usage in order to prevent or minimize exposures. A major issue across the country as property is transferred is how to implement institutional controls and ensure that they will be maintained and followed as planned. Using institutional controls as a remediation tool has raised some concerns regarding their enforceability and possible failure. Specifically, institutional controls may be ignored, forgotten or may yield to outside pressures.

At NTC Orlando institutional controls are being used to restrict land use, limit intrusive activities and restrict groundwater use at various sites. Institutional controls can be useful tools for making property available for reuse in a safe and timely manner, provided that adequate oversight and enforcement mechanisms are in place to ensure their effectiveness. The OPT goal is to work with the City of Orlando's Redevelopment Agency and the Restoration Advisory Board (RAB) to find a way to implement these institutional controls in an effective manner and to ensure that the institutional controls selected for various study areas will not interfere with reuse.

An instance where an institutional control was ignored occurred on some property that was leased to the City of Orlando in preparation for its eventual transfer. Last year, during a visual inspection of the North Grinder Landfill (OU1), it was noticed that a trench 1-ft deep had been dug at the site. Lease restrictions had been placed in the FOSL to require written approval of NTC PWO of intrusive activities into the landfill. The city was also required to replace material that had been removed to maintain a 2-foot cover over the landfill. It is believed that a sublessee in the RTC area is responsible for this. The lack of written approval and failure to maintain the cover constituted a failure to comply with lease restrictions in the FOSL.

The state of Florida has concerns about the mechanisms that will provide for institutional controls on several pieces of property, including OU1, that are due to be transferred to the city. The state envisions that restrictive covenants will be attached to the deeds at the time of transfer. These restrictive covenants are between the property owner and the FDEP and will be attached to the deed to apply to future landowners. The restrictive covenant will have language that specifies the requirements to remove institutional controls from the property.

Main Base Golf Course

During RI activities at OU3 (SA8 and SA9), arsenic concentrations on the golf course side of these study areas were found in exceedance of the Florida residential soil cleanup target level. A time critical decision had to be made because this parcel was ready to be transferred within the next 60 days. The OPT worked effectively and expeditiously in preparing, reviewing, and approving the workplan. Data was collected, analyzed, plotted and distributed to the team for review. In less than a month, the Navy had a FOST Addendum ready to be presented and negotiated with the City of Orlando and its developer. The team decided that the soil could remain on site and be buried beneath the roads since it did not exceed leaching criteria. However, the City and developer didn't agree with the team's decision and requested that the arsenic be removed from the site. The Navy is still in negotiations with the City as to how to remediate the golf course to make it suitable for the intended redevelopment.

Soil Management

Several of our Study Areas and the Main Base Golf Course have contamination in soil that exceed FDEP criteria for residential use but are acceptable for non-residential redevelopment. The team decided that such soils could be used as cover material on the McCoy Annex Landfill which is intended for recreational use. This action will save both the cost of disposing of the soil and the cost of buying soil to provide adequate cover for the landfilled areas.

Turnovers

Personnel turnover slows down the remedial process and the decision-making process. This past year we have had changes in OPT members from FDEP, Harding Lawson and Bechtel. Also, our CLEAN Contractors have had a change in ownership. These changes require the team to work hard to bring new team members up to speed and has caused us to reevaluate some of our previous decisions.

SUCCESS STORIES

The OPT has initiated many time saving and cost reducing processes while completing the environmental assessments at NTC Orlando. We continue to save time with desk top reviews and have streamlined the paperwork process even more by using Letter Reports and Tech Memos to get the data to the team expeditiously. Conference calls and e-mail are also used to provide better communication to address and resolve problems and issues. The CURTT team is used as a resource to provide valuable expertise in the evaluation of sites and the selection of remedial actions. As a minimum, all of our projects are reviewed by SOUTHDIV's technical section to insure that the experts available through the State, EPA, and Navy are utilized to their fullest potential. Getting the experts involved upfront will help the OPT make better decisions which will reduce the cost of the environmental assessments and remedial actions.

The OPT has successfully used innovative technologies and presumptive remedies to speed-up the OU and site screening investigations. The team has had many success stories in both the IR and Tank Programs. Just a few of them are listed bellow: Intrinsic bioremediation of groundwater and the use of plants (phytoremediation) to remediate the organic solvent PCE and vinyl chloride is being considered for OU 4. Bioremediation of soil for petroleum hydrocarbons has been enhanced by using a Vac-Truck to remove free product and draw oxygen into the contaminated zone thus shortening the time to remediate the site. Micro-wells are being used for site assessments to reduce the time needed for well installation and the amount of waste which must be drilled and disposed of. The use of new and innovative technologies helps reduce the time required to assess our sites and saves time and money.

Main Base Golf Course Investigation:

- (1) During RI activities at OU3 (SA8 and SA9), arsenic concentrations on the golf course east of these study areas were found in exceedance of the Florida residential soil cleanup target level. A time critical decision had to be made because this parcel was ready to be transferred within the next 60 days. The OPT worked effectively and expeditiously in preparing, reviewing, and approving the workplan. Data were collected, analyzed, plotted and distributed to the team for review. In less than a month, the Navy had a FOST Addendum ready to be presented and negotiated with the City of Orlando and its developer.

Main Base Landfill (OU1):

- (1) Working closely with the Orlando Redevelopment Authority, a reuse was selected which was compatible with the landfill site.

- (2) A ROD was completed in 3 years by using a presumptive remedy and accelerating the RI/FS schedule. It normally takes 5-10 years to complete a CERLA ROD on a closed landfill.

McCoy Annex Landfill (OU2):

- (1) Traditional survey techniques would have resulted in considerable disruption to the golf course with the pin flags and stakes interfering with the golfers and the course maintenance. In addition, unless the course was shut down for 3 to 4 weeks, the survey stakes would have been subject to destruction from golfers and the lawn mowers. To overcome these problems, an innovative approach using a Global Positioning Satellite (GPS) system was implemented. With the GPS, location data were successfully collected in real time as the geophysical surveys were performed. This resulted in minimal disruption to the golf course operation and eliminated concerns regarding loss of survey stakes and pin flags.
- (2) The GPS unit and the magnetometer were linked directly so that the GPS data and the magnetic data were recorded as data "pairs" (location and magnetic intensity). A cesium vapor magnetometer was used to collect data more rapidly (more readings per minute, and therefore, more data points per unit area) and with better accuracy.
- (3) Passive soil organic vapor (SOV) modules were used in place of traditional SOV techniques involving intrusive activities with a truck-mounted direct push rig. Very little, if any, disruption to the golf course resulted from use of the passive modules, whereas the truck-mounted rig would have involved significant short- and long-term disruption (shut down of golfing and ruts in the course).
- (4) Cone Penetrometer Testing (CPT) was used to obtain soil and water samples, as well as information about the stratigraphy of the surficial aquifer. This approach is much less expensive than using conventional drilling methods to collect soil cores for description and logging.

Pesticide Storage and mixing Areas (OU3) and Study Area 52:

- (1) IRA was used to remove contaminated soil and reduce the time necessary to cleanup and transfer property.
- (2) Micro-wells were used to reduce investigation costs.

Base Laundry (OU4):

(1) Innovative technology in-well stripping and micro-wells were used to reduce cost and stop PCE release through the groundwater to Lake Druid. This technique will be effective in removing PCE from the groundwater and will not significantly affect the area in which natural degradation of the PCE is occurring.

Petroleum Tank Program:

- (1) Risk reduction has been accomplished by source and soil removal while tanks were removed.
- (2) Micro-wells are used to reduce investigation cost.
- (3) IRA was completed at the McCoy Annex Gas Station (Building 7174) tank to reduce time and cost necessary to cleanup site and transfer property.

SCHEDULE

Projected activities to be completed in FY- 99 are listed below and the current schedule for the restoration work identified to date is shown in Figure 8.

- Complete FS for OU3.
- Complete Proposed Plan and ROD for OU3.
- Complete RI/FS for OU2.
- Complete Decision Document for OU2.
- Complete FS for OU4.
- Complete chemical oxidation pilot study for OU4.
- Complete FOSL for McCoy Golf Course.
- Complete FOST for Herndon Annex.
- Complete seven IRAs to remove contaminated soil at SAs 17, 18, 35, 37, 40, 42 and OU3.
- Continue OU1 Long Term Monitoring Plan.
- Complete FOST Addendum for EDC Main Base.
- Complete PBC for GOAA.
- Complete IRAs to remove contaminated soil at 6 UST sites.
- Remove 27 tank systems.
- Complete tank assessments and closure documents for all removed tanks.

ID	Task Name	Duration	Start	Finish	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
					'93	'94	'95	'96	'97	'98	'99	'00	'01	'02
1	BRAC Activities	1686d	10/4/93	11/1/99										
2	Environmental Baseline Surve	410d	10/4/93	4/28/95										
3	BRAC Clean-up Plan (BCP)	1321d	12/9/93	12/31/98										
4	FOST & FOSL	1198d	4/3/95	11/1/99										
5														
6	IR Program Activities	1374d	1/25/94	4/30/98										
7	Project Operation Plan (POP)	120d	1/25/94	7/11/94										
8	Community Relations	1374d	1/25/94	4/30/99										
9	Site Screening & RI/FS Work Pl	589d	1/25/94	4/28/96										
10														
11	Group I	1436d	7/1/94	12/31/99										
12	Site Screening Fieldwork	261d	7/1/94	6/30/95										
13	ESI, RI/FS, IRA. RD, RA	1197d	6/1/95	12/31/99										
14														
15	Group II	871d	1/2/95	5/4/98										
16	Site Screening Fieldwork	200d	1/2/95	10/6/95										
17	ESI, RI/FS, IRA. RD, RA	720d	8/1/95	5/4/98										
18														
19	Group III	1263d	3/1/95	12/31/99										
20	Site Screening Field work	270d	3/1/95	3/12/96										
21	ESI, RI/FS, IRA. RD, RA	1066d	12/1/95	12/31/99										
22														
23	Group IV	891d	3/1/97	7/31/00										
24	Site Screening Fieldwork	270d	3/1/97	3/13/98										
25	ESI, RI/FS, IRA. RD, RA	643d	2/12/98	7/31/00										
26														
27	Group V	1000d	3/1/97	12/29/00										
28	Site Screening Fieldwork	270d	3/1/97	3/13/98										
29	ESI, RI/FS, IRA. RD, RA	752d	2/12/98	12/29/00										
30														

Project: NTC ORLANDO BRAC
Date: 3/16/99

Task



Rolled Up Task



Progress



Rolled Up Milestone



Milestone










Rolled Up Progress



Summary



ID	Task Name	Duration	Start	Finish	1993 '93	1994 '94	1995 '95	1996 '96	1997 '97	1998 '98	1999 '99	2000 '00	2001 '01	2002 '02
31	Long Term Monitoring(IRP)	1698d	6/30/97	12/31/03										
32														
33	Operable Unit 1	1600d	4/3/96	12/29/00										
34	Remedial Investigation RI/FS	640d	4/3/96	4/26/97										
35	Remedial Design (RD)	240d	12/2/96	10/31/97										
36	Remedial Action (RA)	670d	9/1/97	12/29/00										
37														
38	Operable Unit 2	1088d	4/30/97	6/29/01										
39	Remedial Investigation RI/FS	675d	4/30/97	11/30/99										
40	IRA	283d	9/1/98	9/30/99										
41	Remedial Design (RD)	218d	9/1/99	6/30/00										
42	Remedial Action (RA)	282d	6/1/00	6/29/01										
43														
44	Operable Unit 3	958d	4/30/97	12/29/00										
45	Remedial Investigation RI/FS	478d	4/30/97	2/26/99										
46	Remedial Design (RD)	131d	2/1/99	8/2/99										
47	Remedial Action (RA)	435d	5/3/99	12/29/00										
48														
49	Operable Unit 4	1623d	11/30/94	2/16/01										
50	Remedial Investigation IRA	558d	11/30/94	1/17/97										
51	Remedial Design (RD)	118d	1/1/97	6/13/97										
52	Remedial Action (RA)	366d	1/13/97	6/8/98										
53	Remedial Investigation RI/FS	673d	9/2/96	3/31/99										
54	Remedial Design (RD)	164d	3/1/99	9/30/99										
55	Remedial Action (RA)	470d	5/3/99	2/16/01										
56														
57	Compliance Mgmt Plans/ Surveys	240d	3/10/97	2/6/98										
58	Asbestos Abatement	240d	3/10/97	2/6/98										
59														
60														

Project: NTC ORLANDO BRAC Date: 3/16/99	Task		Rolled Up Task	
	Progress		Rolled Up Milestone	
	Milestone		Rolled Up Progress	
	Summary			

ID	Task Name	Duration	Start	Finish	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
					'93	'94	'95	'96	'97	'98	'99	'00	'01	'02
61	Tank Program	2088d	10/3/94	9/30/02										
62	UST 1994 Removals/ Assessm	360d	10/3/94	2/16/96										
63	UST 1995 Removals/ Assessm	320d	2/16/96	5/8/96										
64	UST 1996 Removals/ Assessm	340d	9/1/96	12/19/96										
65	UST 1997 Removals/ Assessm	300d	9/2/96	10/24/97										
66	UST 1998 Removals/ Assessm	456d	9/1/97	6/3/99										
67	UST Remediation	1280d	1/11/96	12/7/99										
68	Long Term Monitoring(UST)	1281d	11/3/97	9/30/02										

Project: NTC ORLANDO BRAC
Date: 3/16/99

Task



Rolled Up Task



Progress



Rolled Up Milestone



Milestone



Rolled Up Progress



Summary



Installation Restoration Program Non-UST/AST Investigation Summary						
Base Realignment and Closure, Naval Training Center, Orlando						
Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)						
SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
1	MB	1/White	3126	Hospital Civilian BEQ	40 square-foot stain on ground outside mechanical room	No significant detections in soil or groundwater. One groundwater sample had a lead level of 17.1 µg/l Vs. a FL MCL of 15 µg/l. The monitoring well was resampled 6/7/95 and no lead was detected. There was no evidence of landfilling operations. Property was approved for no further action (NFA) by OPT 7/24/96.
		1/White	UNF-12	Alleged Hospital Landfill	Used as a landfill in the late 1970's, contents unknown	
3	MB	4/Dk Grn	73/2816 2817	RTC 1st Lt. Storage/ Office/Shops	Hazardous materials are stored on the property and are regularly transferred to and from Building 2817 Former USAF Tactical Air Command operations involving Matador missile testing and personnel training	PCE (tetrachloroethene) detections of 9 µg/l and 12 µg/l (versus FL MCL of 3 µg/l) were detected in groundwater samples. OPT approved a groundwater use restriction near wells OLD-03-01 and -04 and groundwater monitoring for one year or until MCLs were achieved. <i>Sampling of well OLD-03-04 was discontinued 12/98 as PCE had fallen below the FL MCL for 2 consecutive months. The most recent round of sampling (2/23/99) showed that PCE in well OLD-03-01 had decreased to 2.9 µg/l. Site was approved for NFA 8/97.</i>
4	MB	4/Dk Grn	250/8	Rusk Memorial Chapel and covered walkways	PCB spill of unknown quantity in the mid 1980's	No significant detections in soil. No groundwater samples taken. Property was approved for NFA by OPT 7/24/96. Bldg. 250/8 is 4/Dk Grn and Bldg. 251 is 1/White.
		1/White	251	Rusk Memorial Chapel Annex	PCB spill at adjoining property (Bldg. 250) of unknown quantity	
5	MB	1/White	UNF-13	Septic Tank/Leachfield	Unknown environmental impacts from a previously existing motorboat rental/maintenance facility and septic tank	No significant detections in soil or groundwater. Geophysical surveys showed some buried pipes/metal objects. Property was approved for NFA by OPT 7/24/96.
6	MB	1/White		Lake Baldwin	Likelihood of contamination from stormwater runoff from golf course, photo lab, lead from former skeet range, drainage from firefighter training facility and motorboat maintenance facility, and alleged drum disposal in lake	Surface water had no significant detections. Sediments had elevated levels of lead and 4,4'-DDE, though below the FL probable effects level (PEL). 1 sample had elevated PAHs. Divers have investigated seven magnetic anomalies and observed various ferrous debris, but no items of environmental significance. Property was approved for NFA by OPT 7/96.
7	MB	1/White		Lake Susannah	Receives stormwater runoff from other suspect areas and alleged drum disposal in lake	Surface water had no significant detections. Sediments had elevated metals and PAHs, but below FL PELs. OPT approved for NFA 7/96.
8	MB	5/Yellow	2134	Greenskeeper Storage	Likelihood of petroleum and pesticide spills	Arsenic in surface soil and groundwater at Greenskeeper Storage caused SA to be designated OU 3 (See listing for OU 3 (page 5). IRA (soil removal) completed 9/97 with 50 tons of soil excavated and backfilled with clean soil. See OU 3 for additional information. Evidence of demolition debris buried under golf course. Gross alpha, sodium, and manganese levels exceed screening criteria in three wells. Wells OLD-08-05 and -09 were resampled 12/29/95 due to elevated Mn (69.9 µg/l Vs. FDEP groundwater guidance level of 50 µg/l) and Na (248,000 µg/l Vs. 160,000 µg/l). Mn/Na levels were measured at 97.4 and 59,800 µg/l. OLD-08-06 was resampled 6/17/96 for gross alpha resulting in a gross alpha concentration of 0.39 pCi/l Vs. 18.1 pCi/l during the initial
		3/Lt Grn	UNF-15	Former WWTP - Main Base	Burial of sludges from former WWTP and hospital demolition debris in WWTP lagoons	

Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
						sampling. Property was approved for NFA 6/97.
9	MB	5/Yellow	UNF-14	Former Pesticide/Herbicide Storage	Pesticide and herbicide releases may have occurred during operation of facility	Chlordane and arsenic in surface soil and pesticides in groundwater will require further study; with SA 8 (Greenskeeper Storage Area) has been designated OU 3 (See listing for OU 3, page 5). IRA (soil removal) completed 9/97 with 3,000 tons of soil excavated and backfilled with clean soil. FDEP and EPA RI report comments have been received and HLA has provided responses. The FS report was issued in December 1998 and is in review.
10 ²	MB	1/White	IAS-4	Former Yard Waste Disposal Area	Contents of disposal area unknown	No significant detections in soil or groundwater. Property was approved for NFA by OPT 7/24/96.
27	MB	2/Blue	2010	Security Building	Evidence of cleaning solvent and paint product disposal in the retention pond	Site screening investigation completed 6/96. Analytical results indicate that two surface soil samples had concentrations of BEHP or arsenic elevated slightly above residential screening levels but below industrial screening levels. A third sample had three PAHs with elevated concentrations. HLA completed delineation of PAHs in surface soils. Results indicate that approximately 44 yds ³ of soil did not meet FL residential SCGs. The Navy completed a soil removal in mid-April 98. Property was approved for NFA by OPT 7/1/98.
		4/Dk Grn	2073	Armory/Hurricane Storage Locker	Cleaning solution draining into retention pond	
28	MB	1/White	114	Bowling/Arts & Crafts Center	Drip drying of silk screen operation may have impacted the soil and/or GW	Field work completed 8/97 and data evaluation completed 12/97. OPT approved for NFA 1/98.
29	MB	4/Dk Grn	127	Grounds Maintenance	Stained soil and stressed vegetation near a storage locker	Field work completed 8/97 and data evaluation completed 12/97. In 1/98 OPT approved for NFA, except for small portion of property with arsenic in surface soil where a non-residential use restriction will be imposed.
30	MB	4/Dk Grn	129	Automotive Hobby Shop	Waste oil storage and antifreeze/water separator	Field work began 6/97, and included a geophysical survey (EM-61 and magnetometer) and a soil gas survey. Groundwater sampled 10/97. Resampling of two wells with chromium/nickel exceedances resulted in values well below action levels. Property was approved for NFA by OPT 7/1/98.
	MB	4/Dk Grn	131	Paint Shop Materials Storage	Diesel fuel staining and stressed vegetation under an AST	
		4/Dk Grn	2262	Custodial Contractor	Past use as a pest control facility	
31	MB	2/Blue	354	Nuclear Power Field "A" School	Impacts from UST and the oil/water separator	Field work began 6/97. 12/97 OPT approved for NFA.
32	MB	1/White	358	BEQ/Heating Plant	Alleged dumping of paints, thinners, and petroleum products when this area was a motor pool	Field work began 6/97 and included a soil gas survey. Groundwater sampled 10/97. OPT approved for NFA 3/19/98.
33	MB	4/Dk Grn	2001	Administration Building	Dry well located on property	Field work completed 8/97. Groundwater sampled 10/97. OPT will require limited soil removal due to PAHs in surface soil, then resampling to confirm PAH removal. Soil removal was completed by Navy Public Works Dept. during wk of 3/2/98. Soil sampling at base of excavation in affected areas indicates PAH concentrations well below screening criteria. OPT approved NFA on 5/21/98.
		4/Dk Grn	2002	NTC Headquarters	Same as above	
		4/Dk Grn	2003	DFAS Office	Same as above	
		4/Dk Grn	2004	Administration Building	Stains on floor and walls of boiler shed and mechanical room, and a dry well located on the property.	

Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
34	MB	1/White	2024	NTC Supply	Unused supply well onsite	Appropriate well abandonment recommended for the former A/C supply well. St. John's River Water Management District removed the pump, logged and grouted the well. OPT approved NFA on 3/19/98.
35	MB	7/Gray	2078	Auto Maintenance Facility	Soil staining associated with drum storage area	Field work began 6/97 and included a soil gas survey. Groundwater sampled 10/97. Further delineation and groundwater screening required due to high TRPH (up to 84,000 mg/kg) in several surface soil samples including 35S01401. Arsenic in surface soil samples at 9 of 16 locations at concentrations ranging from 1.1 to 6 mg/kg Vs. background screening concentration of 1.0 mg/kg. 4 microwells were installed wk of 3/2/98. No exceedances detected in groundwater. Navy will conduct soil removal to address TRPH exceedances in soil samples. IRA workplan has been submitted and was revised to reflect FDEP concerns about arsenic in surface soil. A fact sheet has been prepared for the public. Site screening report will be finalized following soil removal.
		7/Gray	2079	Auto Maintenance Facility Storage	Unlabelled drum and unknown storage practices concerning the hazardous materials at the facility	
36	MB	7/Gray	2121	PW Lumber Storage	Soil staining from an oil spill, drum storage area	Field work began 6/97 and included a soil gas survey. Groundwater sampled 10/97, resulting in TCE detection of 19 µg/l in well OLD-36-06. 5 additional wells installed and sampled in late June to characterize TCE plume. TCE detected at 250 µg/l in well OLD-36-09 (screened 35 ft bls). 3 more monitoring wells were installed, including 2 deep wells to top of Hawthorn. No chlorinated solvents were detected in samples from the deep wells. A site screening report summarizing investigation activities to date is in preparation.
		7/Gray	2122	PW Shops	Suspect past and present storage and disposal of paints and solvents, solvents, and questionable oil collection practices	
37	MB	6/Red	2414	Flammable hazardous waste storage	Possibility of thinner and solvent spills, unknown hazardous materials handling practices	Field work began 6/97. Groundwater sampled 10/97. One surface soil sample had chlordane concentration of 92 mg/kg. HLA completed chlordane delineation 3/98, will install 5 microwells after soil removal by Navy. IRA workplan has been submitted to the OPT, along with a fact sheet prepared for the public. Report on hold pending soil removal and microwell results.
38	MB	1/White	4001	Storage and use of pesticides and herbicides	Extensive oil and fuel staining to the floor	Field work completed in 8/97. OPT approved for NFA 12/97.
39 ^s	MB	7/Gray	4060	Loading Platform (Bldg. 137)	Potential landfilling in this area	Site screening studies completed 4/96. Lab results indicate exceedances in surface soil for benzo(a)pyrene (up to 520 mg/kg) and arsenic (up to 6.7 mg/kg). Groundwater had exceedances for PCE (1 sample, 10 µg/l) and gross alpha and gross beta. Additional soil and groundwater resampling to evaluate RADs background levels in both media. Additional field studies to characterize PAHs/arsenic in surface soils and PCE in groundwater took place between 12/96 and 9/97. Groundwater recommendations include a groundwater use restriction for surficial aquifer, completion of a risk assessment, and continued monitoring of selected wells. Probabilistic risk assessment results were presented to OPT 1/98 and indicated less than 10 ⁻⁶ risk. OPT exploring options regarding future development that may substantially reduce soil remediation to residential standards. IRA workplan
		7/Gray	4067	Loading Platform (Bldg. 137)	Potential landfilling in this area	
		7/Gray	15109	Irrigation Well	In close proximity to the old coal storage area, out-of-service well onsite	
		7/Gray	UNF-10	Open Area (west of Nuclear Power School)	Unknown nature of coal staging area, west side of property allegedly used as a landfill	

*Changes for this revision are bolded and italicized

See notes, glossary, and BRAC color codes at end of table Revised

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Installation Restoration Program Non-UST/AST Investigation Summary*

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
						has been submitted to the OPT along with a fact sheet prepared for the public.
40 ⁵	MB	7/Gray	21022	Softball Field	In close proximity to the bottle landfill (UNF-6) to the south, may be additional landfilling activities here.	Site screening studies were completed 4/96. Lab results indicate minor exceedances in surface soil from benzo(a)pyrene (200J mg/kg) and arsenic (1.1 mg/kg); groundwater had minor exceedances for gross beta (31.8 pCi/l). Additional field studies to characterize PAHs/arsenic in surface soils took place between 12/96 and 9/97. Final site screening report is in preparation. IRA workplan has been submitted to the OPT and has been revised to reflect additional surface soil samples collected 11/98 to characterize surface soil. A fact sheet was prepared for the public.
		7/Gray	21023	Softball Field	In close proximity to the bottle landfill (UNF-6) to the southwest, may be additional landfilling activities here.	
		7/Gray	UNF-6	Bottle Landfill	Landfill with unknown contents.	
41	MB	1/White	UNF-8	Open Area	Previous existence of buildings and storage tanks warrant further investigation	Former USTs/ASTs will be evaluated in the Tank Management Plan (TMP). Site screening evaluated potential PCB releases at former transformer sites. Field work completed in 8/97. OPT approved for NFA 12/97.
42 GRP V	MB	7/Gray	2055	Maintenance Shop	Storage of hazardous materials, two filled-in sumps onsite of unknown past use	Field work began 6/97. Groundwater sampled 10/97. OPT concerns regarding PAHs in surface soil; HLA took 7 surface soil samples 2/26/98 to further characterize the site. 6 of 7 additional samples were ND or below SCGs for PAHs; 1 had benzo(a)pyrene with concentration equal to SCG. Site screening report issued as final draft at June OPT meeting, recommending limited soil removal. HLA has prepared a fact sheet for OPT review, which will be made available to the public. Report will be finalized after soil removal activities.
43 ⁵⁶	MB	1/White		North Grinder Landfill sketel range	Potential lead contamination.	6 surface soil samples (and 1 duplicate) collected and submitted for lead analysis 12/95. No exceedances were noted.
	MB	3/Lt Grn	229	Indoor rifle and pistol range	Potential lead contamination. (See also Herndon Annex, Building 601.)	18 surface soil samples (and 2 duplicates) submitted for lead analysis 12/95. One sample slightly exceeded screening criteria. TCLP analysis for lead at the location of the highest lead concentration was below the RCRA regulatory limit. This site was approved for NFA on 12/10/96.
44 ⁵⁶	MB	1/White		Former motor pool and Missile Training Range	Possible PCE plume (Missile Training Range) and BTEX contamination (former motor pool).	Site screening studies completed 11/95. Field screening indicates localized BTEX and possible PCE/TCE contamination, but neither confirmed by monitoring wells. Six piezometers installed to evaluate groundwater flow anomaly. OPT approved for NFA 7/97.
		4/Dk Grn	former 2721	Silk screening facility	Alleged disposal area for solvents and paints when silk screening operation closed.	Site screening studies completed 11/95. Geophysical anomalies were investigated with two monitoring wells. Groundwater has no exceedances, but HLA recommended a limited test pitting program to determine source of geophysical anomalies. Test pitting completed 9/96 uncovered the buried foundations of Bldgs 2721 and 2722. Site approved for NFA.
45 ⁵	MB	1/White	125	Alleged disposal area near Bldg. 125	Alleged landfill with unknown contents.	Field screening completed 3/96. The analytical results indicate no environmental concerns. Site was reviewed for exceedances of Florida secondary drinking water standards (FSDWS) in groundwater and

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See notes, glossary, and BRAC color codes at end of table Revised

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Installation Restoration Program Non-UST/AST Investigation Summary Base Realignment and Closure, Naval Training Center, Orlando Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)						
SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
OU 1 ³	MB	3/Lt Grn	21	RTC Fitness Trail	Potential impact from North Grinder Landfill (contents of landfill not well documented).	approved for NFA 6/19/97.
		3/Lt Grn	4004	North Grinder (paved)		<p>Draft remedial investigation report submitted to Navy on 4/4/96. HLA concluded: (1) PAH contamination in surface soil does not pose unacceptable risks (EPA and FDEP concur); (2) elevated gross alpha/gross beta in several wells adjacent to landfill are due to naturally-occurring radionuclides which have been mobilized by altered groundwater chemistry near and under the landfill; (3) a landfill cap will not be required (EPA and FDEP concur); (4) groundwater should be monitored in downgradient wells to determine if there are any changes in contaminant concentrations as a function of time (EPA and FDEP concur).</p> <p>At the request of the OPT, HLA installed two upgradient wells (one at intermediate depth [OLD-U1-28B], one deep in the shallow aquifer [OLD-U1-29C]) to evaluate a potential upgradient RADs source. The lab results indicate RADs activity above background in both wells (gross alpha/beta in OLD-U1-28B 44.2/31.7 pCi/l Vs. background screening value of 13/9.5 pCi/l, in OLD-U1-29C 22.9/32.1 pCi/l). However, filtered samples had RADs activity significantly lower than background in both wells.</p> <p>The OPT approved all comment responses and the final RI report was submitted on 12/19/96. The (draft) proposed plan, which calls for groundwater monitoring, was submitted 4/97 and the (draft) Record of Decision document was submitted 6/97. The final proposed plan was also submitted 6/97, and a public meeting was held on 5/22/97. The Final ROD was submitted 6/30/97 and signed by the Navy 7/29/97.</p>
		3/Lt Grn	4005	North Grinder (grass)		
		3/Lt Grn	4021	South Grinder (paved)		
		3/Lt Grn	4022	South Grinder (grass)		
OU 3	MB	5/Yellow	2134	Greenskeeper Storage	Confirmed arsenic in surface soils. An interim remedial action (IRA) took place in 9/97, resulting in 50 tons of soil being excavated and backfilled with clean soil.	<p>Soil samples had elevated levels of arsenic (up to 577 mg/kg) Vs. a background screening level of 1 mg/kg. Groundwater had elevated levels of arsenic (up to 425 µg/l Vs. 50 µg/l MCL). A PRE was conducted indicating no ecological risk, but human health risk was higher than 1x10⁻⁶. The Greenskeeper Storage Area, along with SA 9, has been designated OU 3. RI Fieldwork began 10/97 and was completed 3/98. The RI report was completed 7/98. FDEP and EPA RI comments have been received, HLA responses have been submitted, approved and incorporated. <i>FDEP and EPA FS comments have been received and draft responses will be submitted 3/99. A round of groundwater samples is being collected 3/99 and additional soil removal actions are scheduled for April/May 99.</i></p>
OU 3	MB	5/Yellow	UNF-14	Former Pesticide and herbicide Storage	Pesticide and herbicide releases may have occurred during operation of facility. An interim remedial action (IRA) took place in 9/97, resulting in 3,000 tons of soil being excavated and backfilled with clean soil.	<p>Chlordane up to 2900 mg/kg Vs. screening value of 490 mg/kg. A PRE was conducted indicating no ecological risk, but human health risk was higher than 1x10⁻⁶. The site, along with the Greenskeeper Storage Area (SA 8), has been designated OU 3. RI Fieldwork began 10/97 and was completed 3/98. The RI report was completed 7/98. FDEP and EPA RI comments have been received, HLA has submitted responses, and the responses have been accepted and incorporated. The FS was submitted</p>

Installation Restoration Program Non-UST/AST Investigation Summary*						
Base Realignment and Closure, Naval Training Center, Orlando						
Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)						
SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
						12/98. FDEP and EPA FS comments have been received and draft responses will be submitted 3/99. A round of groundwater samples is being collected 3/99 and additional soil removal actions are scheduled for April/May 99. This will determine whether or not contaminant concentrations are decreasing, as would be expected following source removal.

16	MA	1/White	7168	Maintenance Yard	Potential release from an oil-water separator	Field work for Group III Sites took place from 3/13/95 to 6/5/95. The (draft) Group III report was submitted to the Navy 12/15/95. There were significant detections of PAHs in four surface soil samples which slightly exceeded SCGs for some PAH compounds. Mineral spirits were present as free product in a well adjacent to an oil-water separator in the northern corner of the site. Site transferred to NTC TMP 10/96. Surface and subsurface soil samples were collected from 19 locations, and sediment samples from 4 locations in accordance with PAH workplan.
		2/Blue	7171	Army Motor Transportation	Potential releases of petroleum releases from motor pool operations	
		1/White	7172	Army Battery Shop	Stained soil associated with used battery storage, possible release of sulfuric acid from inside	
17	MA	7/Gray	7178	Training Material Storage	Evidence of paint dumped down the drains of adjacent wash rack.	Analytical results for SA 17 indicate: one groundwater sample showed significant detections of chlorinated hydrocarbons exceeding MCLs (TCE at 42 µg/l, VC at 190 µg/l, and cis-1,2-DCE at 200 µg/l); there were also exceedances of FDEPG for vanadium, aluminum, manganese, and iron; Surface soils had exceedances of several PAHs in two samples; subsurface soils had exceedances of several PAHs in three samples, although none were above the leaching value. A test-pitting study to determine source of geophysical anomaly revealed items of no environmental significance. Color code is 6/Red for motor pool compound and drum storage area, and 7/Gray for the remaining area pending chlorinated solvent groundwater plume assessment and resolution of PAH contamination. Immunoassay delineation of PAHs completed 10/23/97. Confirmation sampling was completed on 11/25/97. Fieldwork to delineate chlorinated hydrocarbons (DPT, confirmation wells) began in 3/98. DPT results indicate at least two source areas and a plume measuring 200 feet wide by 400 feet long extending to the Hawthorn Group at 60 feet bls in the source areas and approximately 30 feet bls throughout the remainder of plume. IRA workplan for PAH-contaminated soils has been submitted. The final report was submitted 3/99, recommending groundwater monitoring and natural attenuation evaluation.
		7/Gray	7191	DPDO Warehouse	Ground staining and paint dumping evident	
		7/Gray	7193	Army Maintenance Office	Hazardous waste drum storage and alleged burial	
		6/Red	7190	Army Motor pool compound and drum storage area adjacent to 7190	Site used as a motor pool and vehicle storage compound.	
18	MA	7/Gray	7182	Housing Office	hazardous materials including paint, solvents, compressed gases and petroleum products stored there	Analytical results for SA 18 indicate: Aluminum, iron, lead, manganese, thallium, and vanadium exceed background screening concentrations in one groundwater sample, which may have suspended particulates (TSS = 106 mg/l); resampling on 6/18/96 had significantly lower concentrations for all prior exceedances, with aluminum and iron the only analytes still exceeding background screening

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See notes, glossary, and BRAC color codes at end of table Revised
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Installation Restoration Program Non-UST/AST Investigation Summary Base Realignment and Closure, Naval Training Center, Orlando Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)						
SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
						concentrations (5,620 and 5,410 µg/l, respectively). Surface soil detections of PAHs at two locations slightly exceeded their respective SCGs. HLA prepared a letter with recommendations to discuss FSDWS exceedances in groundwater; OPT is reviewing both letters. Color code should remain 7/Gray pending PAH issue. Surface and subsurface soil samples were collected from 9 locations in accordance with PAH workplan. IRA workplan for PAH-contaminated soils has been submitted to OPT, along with a fact sheet prepared for the public.
19	MA	1/White	7184	Auto Hobby Shop	Use of site as an auto hobby shop. Soil staining from waste oil evident	Analytical results for SA 19 indicate no significant detections in any media sampled. OPT approved for NFA 7/97.
20	MA	2/Blue	7187	Storage	Probability of pesticide storage	Analytical results for SA 20 indicate no significant detections in any media sampled. The site was approved for NFA 6/97.
21	MA	3/Lt Grn	7203	Maintenance Shop	Diesel fuel spill in 1993 from a leaking AST, and former pesticide storage	Analytical results for SA 21 indicate slight exceedances of SCGs for PAHs and arsenic in surface soil. Concerns regarding arsenic have prompted FDEP to have SA 21 reviewed by their risk assessment group. Field investigation to evaluate PAHs in surface soil completed 6/97. Property approved for NFA with restriction to recreational use 8/97.
22	MA	1/White	UNF-1	Old Golf Course	Alleged disposal of engines, bomb shells, and spent ordnance in Lake Stanley	Analytical results for SA 22 indicated no significant detections in surface water, sediment, or groundwater. Aluminum, iron and lead exceeded surface water standards. Sampling to evaluate allegations of landfilling have been completed and a limited test pitting program to evaluate geophysical anomalies was completed in 9/96 with no findings of environmental concern. A UXO survey performed by the Mayport EOD team did not reveal any items related to UXO disposal. OPT approved NFA 6/97.
23	MA	5/Yellow	UNF-2	Former officer's swimming pool and bathhouse (Building 7119)	Area used as a disposal pit for demolition debris, possibility of an unidentified UST	Analytical results for SA 23 indicate exceedances for PAHs in one surface soil sample at the end of the 12-inch drain to the former swimming pool. HLA has recommended a soil removal, after which the site will be suitable for transfer with NFA. IRA workplan has been submitted to OPT for review, along with a fact sheet prepared for the public.
24	MA	1/White	UNF-4	Northwest Swamp	Former disposal area for construction debris	Analytical results for SA 24 indicate exceedances of some metals (aluminum, iron, manganese, potassium, vanadium) in groundwater, which may have been affected by the high suspended particulate (TSS = 500 and 360 mg/l).
		1/White	UNF-5	Southeast Swamp	Former domestic wastewater treatment plant (DWTP) at the southeastern area, demolition debris	HLA presented results of a study to determine the relationship between high TSS/turbidity and elevated concentrations of metals above secondary groundwater standards. Property approved for NFA by OPT 6/97.
25	MA	4/Dk Grn		Former DWTP - McCoy Annex	Suspect due to the nature of the facility	Analytical results for SA 25 indicate iron and manganese exceedances in groundwater and slight exceedances of PAHs and pesticides in surface and subsurface soils. Resampling of OLD-25-03 for manganese on

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Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
						7/25/96 determined a concentration of 662 µg/l Vs. a FSDWS of 50 µg/l. Property approved for NFA 7/97.
26	MA	1/White 1/White 1/White 1/White	7351 7352 7357 7358	Camp Bath House Camp Laundry Family Camp Office Family Camp	Past use as an airfield strip and drum storage area Same as above In close proximity to old airstrip, drums once stored here Past use as an airstrip and drum storage area	Analytical results for SA 26 indicate no significant contamination in any media sampled, with the exception of PAH exceedances in adjacent surface soil samples reported in the Background Sampling Report. These two locations have been designated SA 54 (see SA 54 for more information). OPT approved NFA 6/97.
46 ^s	MA	1/White		Sewage disposal pit as part of DWTP	Within SA 25 (Grp III). Alleged disposal of non-domestic wastes.	SA 46 designated AEC-MC-01 in Technical Memorandum, U.S. Air Force Records Search. Screening investigation completed 6/96, and results indicated no evidence of environmental impact. Site has been approved for NFA.
47 ^s	MA	1/White		Former skeet range	Potential lead contamination. Near SAs 25 and 26.	SA 47 designated AEC-MC-06 in Technical Memorandum, U.S. Air Force Records Search. Screening investigation completed 6/96, and results indicated no evidence of environmental impact. Site has been approved for NFA.
48 ^s	MA	1/White		Former auto, boat, and carpentry hobby shop	Potential contamination from past site use.	Site screening investigations were completed 5/96. The analytical results revealed a single pesticide (DDE) slightly above the screening level in one groundwater sample, and a metal detector anomaly indicated a possible UST. Well OLD-48-03 was resampled for DDE 11/96: no pesticides were detected. GPR survey did not reveal a potential UST. Property approved for NFA 6/97.
49 ^s	MA	1/White		Former disposal area	Potential contamination due to landfill with unknown contents. Near SAs 24, 46, and 47.	SA 49 designated AEC-MC-17 in Technical Memorandum, U.S. Air Force Records Search. Screening investigation completed 6/96. Preliminary geophysical results show no evidence of disposal activities. There are FSDWS exceedances in groundwater (aluminum and iron). HLA prepared a letter with recommendations for language to discuss FSDWS exceedances in groundwater. Property approved for NFA 7/97.
50 ^s	MA	1/White 7/Gray 2/Blue 2/Blue 7/Gray 1/White 7/Gray	7189 7178 7253 7174 7179 RV Storage 7182	Former civil engineering yards (Bldgs. 7179 and 7182 investigated as SA18; Bldg. 7178 investigated as SA17).	Potential contamination due to past site use activities.	Site screening activities began 4/96, completed 5/96. Analytical results indicate two surface soil samples with benzo(a)pyrene concentrations exceeding residential soil screening levels, but below industrial screening levels. HLA will recommend no further action for all structures except Building 7174, which is still being evaluated because of the release of petroleum substances. HLA has recommended color code for Bldg. 7189 and RV storage area change from 7/Gray to 1/White; Bldg. 7253 and RV storage compound were investigated under TMP resulting in clean closures. Bldg. 7174 requires remediation of petroleum groundwater plume. OPT approved for NFA with restriction for Building 7189 to future industrial reuse 8/97.
51 ^s	MA	1/White	7159	Former electrical substation	Potential PCB contamination due to spills and other incidents.	Site screening activities were completed 8/96. No PCBs were detected during field screening (immunoassay test kits) or in confirmatory samples

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See notes, glossary, and BRAC color codes at end of table Revised
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Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
						submitted to laboratory. Site has been approved for NFA.
52	MA	5/Yellow	Former Building 7261	Former Entomology Lab	Potential pesticide contamination due to past use of building.	Site screening investigations were completed 5/96, confirming soil and groundwater samples with pesticides above screening levels. IRA (soil removal) completed 9/97 with 1,300 tons of soil excavated and backfilled with clean soil. Three monitoring wells were installed after the IRA. The well at the location of the most contaminated soil has dieldrin above the MCL. OPT recommended groundwater restriction and quarterly groundwater monitoring. The most recent sampling indicated groundwater was still well above the Florida GTCL (0.08 µg/l Vs. GCTL of 0.005 µg/l. <i>Final report will be submitted 3/99 recommending continuing groundwater monitoring and institutional controls.</i>
53	MA	3/Lt Grn	Building 7262	Kwik Shoppe	Potential contamination due to past use as a coin operated dry cleaning facility.	Work plan submitted to Navy 4/3/96. Site screening began 4/96. Screening investigation completed 6/96. Field screening results indicated minimal impact to surface/subsurface soil from PCE/TCE. Analytical results below screening criteria. Site has been approved for NFA.
54	MA	5/Yellow		Background surface soil sample locations	PAHs in surface soil above the Florida SCGs were detected in surface soil during the background sampling investigation	Additional sampling and analysis with immunoassay (IA) following the background investigation confirmed the widespread presence of PAHs at sample locations ORS009 and ORS016. HLA submitted the SA 54 report recommending NFA, explaining the likelihood that the PAHs are a result of past forest fires. The report is in review.
OU 2	MA	6/Red 6/Red 6/Red 6/Red	7355 7354 7353 7356	McCoy Annex Golf Course Greenskeepers Storage Golf Course Club House Lawn Equipment Storage	OU 2 is a 99-acre landfill operated by the Air Force from 1960 until 1972 when the Navy took over the property. The Navy closed the landfill in 1978. A 9-hole golf course was constructed over the site, which is drained by a series of canals and retention ponds that discharge to Boggy Creek and Boggy Creek Swamp to the south. It is estimated that over 1,000,000 cubic yards of waste were disposed in the landfill, and that the waste included paints and other solvents, asbestos, transformers, hospital wastes, low-level radiological waste, scrap metal, demolition debris, and yard waste.	Tetra Tech NUS performed the first phase of RI fieldwork 5/97 to 11/97. This work consisted of geophysical surveys; a soil gas survey; sampling of surface soil, surface water, and sediment; groundwater screening with DPT; and cone penetrometer testing to evaluate aquifer stratigraphy. Additional fieldwork began 2/98 with additional geophysics to define the western landfill boundary. Piezometers and stream gauges were installed 3/98 to 4/98 to determine flow directions of groundwater and the connection with ponds, canals, and ditches. A DPT program was performed to delineate groundwater contamination, and subsequently monitoring wells were installed and groundwater sampled and analyzed. Groundwater was found at four locations around the landfill boundary to be contaminated with chlorinated solvents and fuel components. Soil over the landfill had exceedances of benzo(a)pyrene and arsenic. All of the media (surface soil, sediments, surface water, and groundwater) had radiological exceedances (gross alpha/gross beta) but the rad sources may be naturally-occurring. A focused risk assessment to determine the suitability of transferring the OU 2 golf course to the City for continued recreational use is under review. <i>The Draft RI report was issued for review 1/99.</i>

2	HA	1/White	6001	Septic Tank/Leachfield.	Exact contents of septic tank and drain field unknown (see "Other Areas" notes below for Herndon Annex Landfill).	Field screening of the deep wells installed east of Building 606 and south of Building 610 indicate benzene concentrations of 21 and 32 µg/l, possibly
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Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
		7/Gray		Herndon landfill(s)	Potential contamination from unknown landfilled materials.	related to former landfills at Herndon Annex. Additional field investigations indicate a probable off site benzene source. A US Army Corps of Engineers survey conducted for GOAA along the southern boundary of Herndon Annex was inconclusive in determining the benzene source. This land parcel was leased to the City of Orlando 12/96. Sampling of surface water in Lake Barton indicate PCE at concentrations below surface water standards. Offsite screening east of the parcel to determine the extent of benzene plume was completed 12/97. Two confirmation monitoring well clusters were installed 12/97. One deep well at intersection of Nancy Lee Ave. and Bobby St. detected benzene at 53 µg/l. Other confirmation wells in the two clusters did not have contaminants at concentrations of concern. HLA report (4/98) recommends groundwater use advisory to residents in affected area, an evaluation of remedial options, quarterly monitoring of selected wells, and transfer of parcel to Tank Management Program. HLA installed two additional wells to further evaluate the benzene plume. All wells were sampled, and evaluation of analytical data has been completed and the final report will be submitted 3/99.
43 ⁵⁶	HA	3/Lt Grn	601	Indoor rifle and pistol range	Herndon Annex, potential lead contamination. See the remainder of SA 43 at Main Base (North Grinder Landfill skeet range, Building 229).	18 surface soil samples (and 2 duplicates) collected and submitted for lead analysis 12/95. One sample exceeded regulatory screening level. TCLP analysis for lead at the location of the highest lead concentration was below the RCRA regulatory limit, and lead is therefore not of environmental concern. Site has been approved for NFA.

11	AC	1/White	148	Cold Storage Warehouse (Area C)	Abandoned half buried drum - Soil staining around generator pad transferred to UST Program	The field investigation for Group II sites was completed 4/6/95. Analytical results for SA 11 indicate no contaminants exceed guidance levels. Property has been approved for NFA.
12	AC	5/Yellow	1061, 1063	DRMO warehouses and salvage yard.		Transferred to OU 4, below.
13	AC	5/Yellow	1100, 1101	NTC laundry and old heating plant		Transferred to OU 4, below.
14	AC	5/Yellow	1102	Disposal, salvage and scrap building		Transferred to OU 4, below.
15	AC	1/White	1053	CBU-419 Maintenance Shop	Diesel fuel spill reported	Transferred to UST Program.
55	AC	7/Gray	1104	PCB storage building	PCBs and hazardous materials were allegedly stored in Bldg 1104	HLA proposed site screening activities at the June OPT meeting, resulting in OPT discussion and minor revisions. The final letter workplan was submitted to the OPT on June 22, 1998. Field activities were completed in July 98. HLA submitted draft report to OPT recommending NFA.
OU 4	AC	5/Yellow	1063 and	DRMO Warehouses and salvage yard	Former hazardous waste handling and storage area, spills are suspected and a former production well is on-site.	Analytical results from initial screening investigation at SA 12 indicate no significant detections for soil, but that groundwater has PCE at 8 µg/l Vs. A FL MCL of 3 µg/l. Results from supplemental screening activities indicated

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Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
(SA 12)			1061			<p>that shallow groundwater between Building 1100 (SA 13) and Lake Druid, as well as the surface water and sediment along the eastern edge of the lake, was contaminated with PCE and its daughter products (TCE, cis-DCE, and vinyl chloride).</p> <p>SA 12 has been grouped with SAs 13 and 14 and designated as OU 4. A focused investigation was conducted along the lakeshore to determine the source of VOC contamination in the lake. Another investigation was conducted beneath the laundry building to identify potential contamination source areas. Construction of two recirculating wells to mitigate the lake contamination began 11/10/97. These wells are part of an interim remedial action (IRA) while the RI and FS are completed. The IRA is an in-well stripping system that will intercept the contaminated groundwater before it reaches the lake and strip out the VOCs. The two recirculating wells are operational and a monitoring plan is in place.</p> <p>The RI fieldwork began late 10/97, and was completed in 4/98. RI data will be used to characterize the nature and extent of contamination throughout the entire site, in areas identified during the initial screening. These results are being evaluated and will be used to select the best remedial technology. The RI report was issued in September 1998.</p>
OU 4 (cont.) (SA 13)	AC	5/Yellow	1100 (1101)	Laundry Drycleaners (Area C)	Several PCE spills documented, history of poor handling practices.	<p>Passive soil gas and laboratory results from the initial screening investigation at SA 13 confirmed PCE and TCE contamination. Soil and groundwater have elevated levels of PCE, TCE, and cis-DCE. The highest contaminant concentration in soil was PCE at 430 µg/kg Vs. an SCG of 30 µg/kg. The highest concentrations in groundwater were PCE at 28,000 µg/l and TCE at 15,000 µg/l Vs. MCLs for both compounds of 3 µg/l. Most of the highest VOC concentrations were found beneath the laundry building.</p> <p>The extent of groundwater contamination detected during the initial screening investigation was established during the OU 4 remedial investigation (see above).</p>
OU 4 (cont.) (SA 14)	AC	5/Yellow	1102	Disposal Salvage Scrap Building	3 gallon spill of PCE.	<p>Analytical results from site screening indicate no significant detections for soil, but that groundwater has PCE and TCE concentrations of 46 and 20 µg/l Vs MCLs for both compounds of 3 µg/l. Antimony was also detected in several wells at concentrations up to 16 µg/l Vs. a Florida MCL of 6 µg/l. The extent of groundwater contamination detected at SA14 was established during the OU 4 remedial investigation (see above).</p>

Other Areas						
ACM		7/Gray	2713	Administration Building		
ACM		7/Gray	2651	Recycling Center		

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Installation Restoration Program Non-UST/AST Investigation Summary

Base Realignment and Closure, Naval Training Center, Orlando

Site Screening SAs/Operable Units for Main Base (MB), McCoy Annex (MA), Area "C" (AC), and Herndon Annex (HA)

SA	Location	BRAC Color Code	Building Number	Name	Reason for Investigation	Current Status
ACM		7/Gray	2450	Demolished		
ACM/LBP		1/White		Capehart Housing	Currently designated as 1/White.	ACM and LBP surveys completed in 9/95.

4.10 Environmental Condition of Property

Program Review Items 9 and 28

- 9) Prepare and/or update a map that shows the environmental condition of installation property, which incorporates information derived from all site characterization efforts to date. The map should be coded (if color is to be used, use the colors indicated below in italics and brackets for each area; for black and white maps, clearly identify each area type with a distinct pattern or number code) to indicate the following seven area types:
- 1) Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas) *(white)*
 - 2) Areas where only release or disposal of petroleum products has occurred *(blue)*
 - 3) Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action *(light green)*
 - 4) Areas where release, disposal, and/or migration of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken *(dark green)*
 - 5) Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are under way, but all required remedial actions have not yet been taken *(yellow)*
 - 6) Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented *(red)*
 - 7) Areas that are not evaluated or require additional evaluation *(gray)*
- Include this map in Chapter 3.4 of your BCP. Briefly summarize the information sources used to identify these areas, the rationale for their designation, and any uncertainties regarding them in Chapter 3.4 of your BCP.
- 28) Anticipated Reuse Map/Suitability of Property for Transfer Map. Prepare and/or provide a map showing known or anticipated reuse parcels. Include this map in Chapter 2.1 of your BCP. Also modify or prepare an overlay to the environmental condition of property map (prepared in response to Program Review Item 9) to indicate reuse parcels and areas presently suitable for transfer by deed (area types 1-4, as delineated on your environmental condition of property map; see Program Review Item 9); and areas presently unsuitable for transfer by deed (area types 5-7, as delineated on your environmental condition of property map; see Program Review Item 9). Include this map or maps in Chapter 3.4 of your BCP. List any base-wide and parcel-specific EBSs for property transfer in progress in Chapter 2.1 of your BCP.

Rationale

All installations should know the environmental condition of their installation's property in order to assess the progress of ongoing environmental restoration, identify areas where further response may be required, and to facilitate reuse planning and property transfer efforts. BRAC installations must manage all environmental restoration and compliance efforts in a manner that effectively supports property disposal efforts. An environmental condition of property map provides a consolidated "snapshot" of an installation's environmental investigation data, including sampling information, ensuring its use and integration.

Program Review Checklist

To prepare an environmental condition of property map, your BRAC Cleanup Team should consider the following checklist:

- Designate an individual to manage the compilation and integration of data for production of the environmental condition of property map. (This can be done in conjunction with the tasks in Program Review Item 2; this individual should be generally familiar with all data that have been generated for your installation to date).
- Identify and review any recent draft or final base-wide reports that provide specific information on areas of your installation; use this information to identify area types 1-7, as defined in Program Review Item 9. (If a draft or final installation-wide EBS report or equivalent base-wide master database [developed in accordance with DoD CERFA assessment procedures described in appendix A] is available, it should be used to complete your environmental condition of property map. If an EBS or equivalent base-wide database is not available, develop your environmental condition of property map by reviewing key site characterization and compliance-related reports, including EAs, EISs, or other databases to locate maps or data that can be used to delineate contaminant sources and the extent of associated contaminant migration.)
- Synthesize and overlay environmental data from the information sources mentioned above (including data from field sampling efforts), and delineate the area types required in Program Review Item 9; draw on environmental data in contractor-maintained databases, or DoD component-maintained databases, to facilitate the synthesis of sampling results; if your installation has a large volume of data, consider the use of a Geographic Information System (GIS)- and/or Computer Aided Drafting (CAD)-based system to facilitate this effort.
- In conjunction with the above item, hold on-site and real-time working meetings among key individuals responsible for your installation's data management to expedite the review of data available from each environmental program office, including the adequacy, completeness, and quality of this data for delineating area types (this can be accomplished in conjunction with Program Review Item 20).
- If conceptual model data summaries exist for your installation, ensure that these are consulted and integrated into your effort (see Program Review Item 22).
- Define area types 1-7 for your installation. Ensure that your BRAC Cleanup Team reaches consensus on these designations (especially for area types 1-4). If consensus cannot be reached on a particular area, tentatively identify it as a Type 7 area and develop specific action items for its further evaluation. Include these action items in Chapter 6 of your BCP. Use the color codes listed in Program Review Item 9 or establish unique patterns to distinguish area types.
- Prepare your environmental condition of property map at a large scale (e.g., 1:400) (this item does not apply if you are using a GIS and/or CAD system, as any scale can be generated); generate separate overlays, if desirable, showing zones, geographic OUs, sensitive habitats, or any other environmental factors that may need to be addressed prior to property transfer (see Program Review Items 7 and 16).
- Use your environmental condition of property map to identify and fill information gaps and data gaps and to prepare your suitability of property for transfer map.

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- Create a smaller version of your larger scale map, if necessary, for inclusion in Chapter 3.4 of your BCP

To prepare a suitability of property for transfer map, your BRAC Cleanup Team should consider the items in the following checklists:

- Group areas designated on your environmental condition of property map into areas suitable and unsuitable for transfer by deed
 - Label area types 1-4 as suitable for transfer by deed
 - Label area types 5-7 as unsuitable for transfer by deed
- Ensure that your BRAC Cleanup Team is in general agreement regarding the classification of area types as used in your BCP

Guidance

In order to prepare an environmental condition of property map, evidence must be gathered that screens base property at a high level of confidence into seven area types. These seven area types or categories are as follows:

- 1) Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas)
- 2) Areas where only release or disposal of petroleum products has occurred
- 3) Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action
- 4) Areas where release, disposal, and/or migration of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken
- 5) Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are under way, but all required remedial actions have not yet been taken
- 6) Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented
- 7) Areas that are not evaluated or require additional evaluation

The paragraphs that follow further define these area types or categories. Note that the terms "contaminant" and "hazardous substance" used in this section refer to all CERCLA hazardous substances [42 U.S.C. § 9601(14)]. Furthermore, evaluation for area type 1 specifically includes petroleum, petroleum products, oil, and lubricants (as defined by Section 120(h)(4) of CERCLA [CERFA]).

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- 1) Areas where no release or disposal (including migration) has occurred. This area type is defined as follows: a geographically contiguous and mappable area where the results of investigations show that no hazardous substances or petroleum products were released into the environment, or disposed of on site property. A determination of this area type cannot be made, however, unless a minimum level of information gathering and assessment has been completed. In accordance with Section 120(h)(4) of CERCLA as amended by CERFA, all such determinations (i.e., "uncontaminated") of this area type requires concurrence of the appropriate regulatory agency and must be made on the basis of a records search of the area in question and adjacent property; a review of the chain of title documents for the area, a review of aerial photographs of the area, a visual inspection of the area and adjacent property, and interviews with current and former employees regarding their knowledge of past and current activities on the property. These efforts are (or can be) functionally accomplished via an EBS (or properly scoped PA) of the property in question. If information gathered from these efforts indicates that hazardous substances or petroleum products have been released or disposed of in the area, the geographic location becomes one of the other area types.
- 2) Areas where only release or disposal of petroleum products has occurred. This area type is defined as follows: a geographically contiguous and mappable area where the results of investigations show only that release or disposal of petroleum products has occurred. A determination of this area type must be made in accordance with the same requirements in Section 120(h)(4) of CERCLA, as listed in the above paragraph; however, regulatory agency concurrence is not required.
- 3) Areas of contamination below action levels. This area type is defined as follows: a geographically contiguous and mappable area where environmental evidence demonstrates that hazardous substances have been released, or disposed of, but are present in quantities that require no response action to protect human health and the environment. Such quantities of hazardous substances can be below defensible detection limits, or can be above detection limits but below action levels. Below action levels means, in the absence of installation-specific risk-based or standards-based criteria, that the concentration of any hazardous substance in any medium *does not exceed* chemical-specific ARARs. Designation of this area type also means that risk estimates completed for contamination do not do the following:
 - Exceed 10^{-6} for any carcinogenic hazardous substance detected in any medium
 - Result in a hazard quotient above 1 for any non-carcinogenic hazardous substance detected in any medium
 - Exceed 10^{-6} for any carcinogenic hazardous substance, taken together, in any exposure pathway
 - Result in a hazard index above 1 for all non-carcinogenic hazardous substances, taken together, in any exposure pathway
 - Exceed 10^{-4} for any carcinogenic hazardous substance accumulated across all pathways
 - Result in a hazard index above 1 for all non-carcinogenic hazardous substances accumulated across all pathways

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Note that a designation of a Type 3 area cannot be made with confidence unless a minimum level of information gathering and assessment has been completed. As such, all such determinations should be made on the basis of an SI or equivalent level of effort, which includes biased field sampling and laboratory analysis to support a conceptual understanding of the area.

- 4) **Areas where all remedial action has been taken.** This area type is defined as follows: a geographically contiguous and mappable area where all remedial actions necessary to protect human health and the environment have been taken. Type 4 areas include those areas in which an EBS documents evidence that hazardous substances are known to have been released or disposed of on the property, but all remedial actions necessary to protect human health and the environment with respect to any hazardous substances remaining on the property have already been taken to meet the provisions of CERCLA § 120(h)(3). Clarification on the meaning of "all remedial action has been taken" is found in Section 120(h)(3)(A)(ii)(I) of CERCLA. BRAC Cleanup Teams preparing suitability of property for transfer maps should be aware that "all remedial action has been taken" means that the construction and installation of an approved RD has been completed, and/or the remedy has been demonstrated to EPA to be operating properly and successfully (in practice, usually a year).
- 5) **Areas of known contamination with removal and/or remedial action under way.** This area type is defined as follows: a geographically contiguous and mappable area where the presence of sources or releases of hazardous substances is confirmed based on the results of sampling and analysis in electronic databases and/or environmental restoration and compliance reports. By definition, this area type contains contaminant concentration above action levels. Such concentrations do not meet the criteria that would allow a determination of a Type 3 area. Remedial systems for Type 5 areas are partially or entirely in place, but have not been fully demonstrated.
- 6) **Areas of known contamination where required response actions have not yet been implemented.** This area type is defined as follows: a geographically contiguous and mappable area where the presence of sources or releases of hazardous substances is confirmed based on the results of sampling and analysis as contained in electronic databases and/or environmental restoration and compliance reports. This area type contains concentrations of contaminants above action levels. Such concentrations do not meet the criteria that would allow a determination of a Type 3 area. Additionally, required remedial systems have not been selected or implemented.
- 7) **Areas that are unevaluated or that require further evaluation.** This area type is defined as follows: a geographically contiguous and mappable area where the presence of sources or releases of hazardous substances or petroleum products (including derivatives) is suspected, but not well characterized, based on the results of a properly scoped records search, chain of title review, aerial photography review, visual inspection, set of employee interviews, and possibly sampling and analysis. They do not, with certainty, fit any of the previous area types because evaluation efforts have not occurred, are ongoing, or are inconclusive.

NTC & McCoy Annex Hauling Contracts

- 1. 6900 Tons of Non-Haz Soil - NTC to McCoy Annex**
- 2. 9500 Tons of Non-Haz Soil to Subtitle "D" Landfill**

NTC to Landfill = 5300 Tons

McCoy to Landfill = 4200 Tons

- 3. 125 Tons of Haz Soil - NTC to Hazwaste Landfill**
- 4. 14,000 cu. Yds. Of Certified Clean Fill Dirt**

NTC = 10,500 cu. Yds.

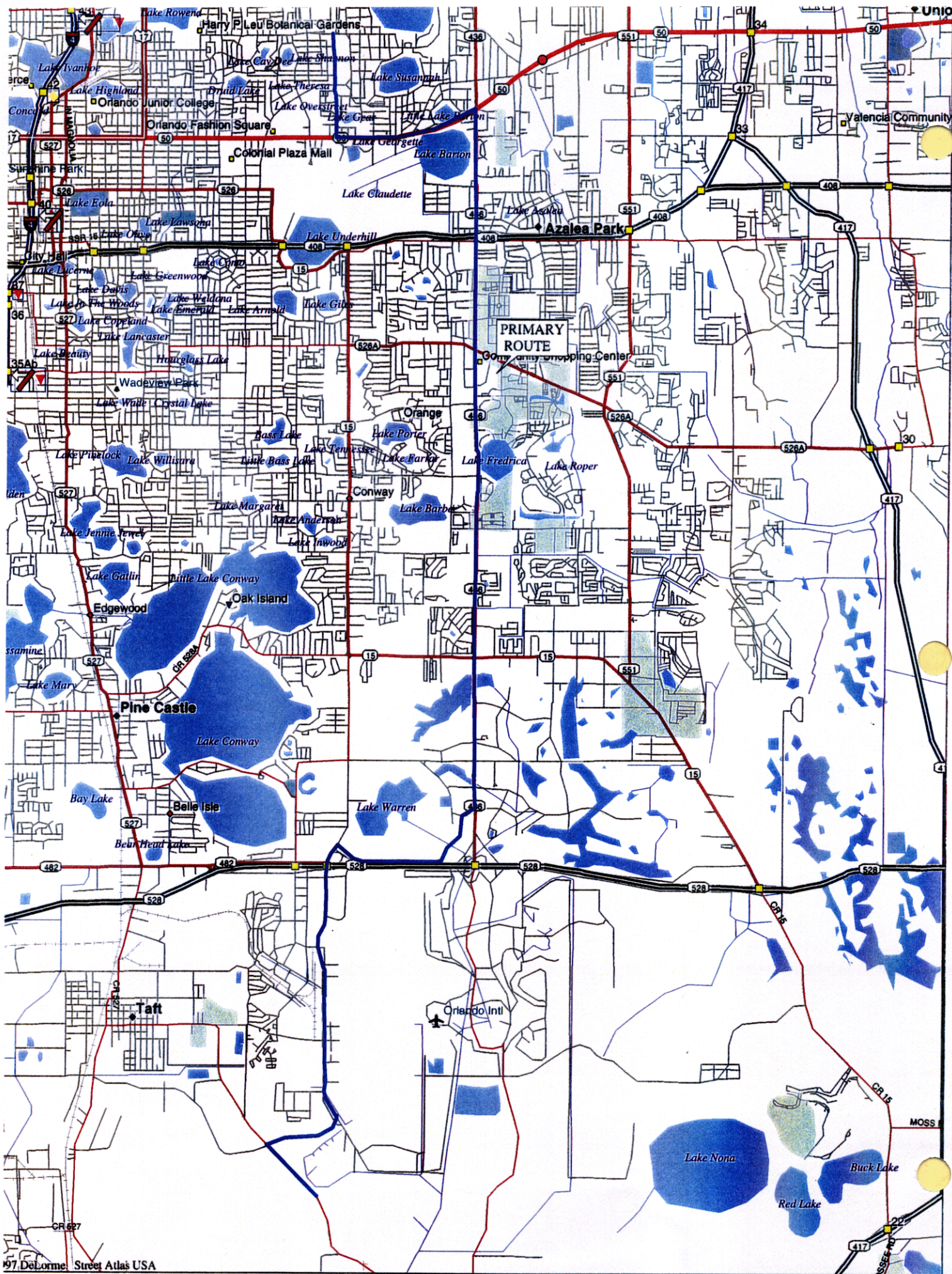
McCoy = 3,500 cu. Yds.

Soil Transport NTC to McCOY Annex

- **6900 Tons - 50 Trucks/Day for 7 Days**
End April into 1st Week of May
Average of 4 Trucks/Hour over 12 Hour Day
- **Contract Not Established - Route is Known**
- **All Trucks to Enter and Exit Through NTC**
Bennett Rd. Gate

Primary Route

- **NTC GATE TO BENNETT RD**
- **SR 50 (COLONIAL DR)**
- **SR 436 (SEMORAN BLVD)**
- **NORTH FRONTAGE/MCCOY ROAD**
- **TRADEPORT DR**
- **BOGGY CREEK RD**



00402E03V

Alternate Route

- **NTC GATE TO BENNETT RD**
- **SR 50 (COLONIAL DR)**
- **SR 436 (SEMORAN BLVD)**
- **SR 408 (HOLLAND EAST-WEST EXPY)**
- **SR 15 (SOUTH CONWAY RD)**
- **NORTH FRONTAGE/McCOY ROAD**
- **TRADEPORT DR**
- **BOGGY CREEK RD**

Soil Transport

NoN-Haz to Subtitle "D" Landfill

- **9500 Tons: NTC = 5300 Tons McCoy = 4200 Tons**
- **Contract not Established - Landfill not Known**
- **Intermittent Traffic Over 32 Days**

Late April to Late May

- **Max Traffic**
 - **SA-8 (NTC) = 1000 Tons/Day for 4 Days Early May**
 - **SA-17 (McCOY) = 1000 Tons/Day for 4 Days Mid May**
 - **1000 Tons/Day = 50 Truckloads/Day = Average of 4 Truckloads/Hour over 12 Hour Day**

Soil Transport NTC to Hazwaste Landfill

- **125 Tons = 7 - 8 Truckloads over 8 Days
End April into 1st Week of May
Average 1 Truckload/Day**
- **Contract not Established - Landfill not Known**

Soil Transport

Certified Clean Fill to NTC & McCoy

- **14,000 cu. Yds. = 775 Truckloads**
 - **NTC = 10,500 cu. Yds. = 580 Truckloads**
 - **McCoy = 3,500 cu. Yds. = 195 Truckloads**
- **Contract not Established - Dirt Pit not Known**
- **Intermittent Traffic over the Month of May**
- **Max Traffic = 100 Loads/Day**
 - **Average of 8 Truckloads/Hour over a 12 Hour Day**

Attachment F

Environmental Meeting - Public Invited

Restoration Advisory Board Naval Training Center, Orlando

The Naval Training Center's Restoration Advisory Board (RAB) will hold its regular meeting concerning ongoing environmental studies and cleanup at NTC.

**When: 7:00 - 9:00 P.M.
Wednesday, March 17, 1999**

**Where: Winter Park City Hall
City Commission Chamber - second floor
401 Park Avenue South, Winter Park**

The current status of all NTC environmental program sites will be presented. The special topic will be the Annual Update to the Business Plan for Environmental Cleanup. An open floor period for community comments or questions will follow the RAB business portion of the meeting.

Documents on the environmental program at NTC, Orlando, including summaries of prior RAB meetings, are available for public review at the Orange County Library, 101 East Central Avenue, Orlando. They are located in the Information Repository in the Social Sciences Department (Aisle 27) on the second floor.

Need More Information?

Call Lt. Gary Whipple at 646-4735

or

Penny Felger at 657-8276

Attachment G

**NAVAL TRAINING CENTER, ORLANDO
RESTORATION ADVISORY BOARD MEETING
WINTER PARK CITY HALL COMMISSION CHAMBER, March 17, 1999**

COMMUNITY SIGN-IN SHEET (please PRINT clearly)[illegible]